

the endogenous gene. The transgene may also be selectively introduced into a particular cell type, thus inactivating the endogenous gene in only that cell type, by following, for example, the teaching of Gu et al. (Gu et al., Science 265:103-106 (1994)). The regulatory sequences required for such a cell-type specific inactivation will depend upon the particular cell type of interest, and will be apparent to those of skill in the art.

Once transgenic animals have been generated, the expression of the recombinant gene may be assayed utilizing standard techniques. Initial screening may be accomplished by Southern blot analysis or PCR techniques to analyze animal tissues to verify that integration of the transgene has taken place. The level of mRNA expression of the transgene in the tissues of the transgenic animals may also be assessed using techniques which include, but are not limited to, Northern blot analysis of tissue samples obtained from the animal, *in situ* hybridization analysis, and reverse transcriptase-PCR (rt-PCR). Samples of transgenic gene-expressing tissue may also be evaluated immunocytochemically or immunohistochemically using antibodies specific for the transgene product.

Once the founder animals are produced, they may be bred, inbred, outbred, or crossbred to produce colonies of the particular animal. Examples of such breeding strategies include, but are not limited to: outbreeding of founder animals with more than one integration site in order to establish separate lines; inbreeding of separate lines in order to produce compound transgenics that express the transgene at higher levels because of the effects of additive expression of each transgene; crossing of heterozygous transgenic animals to produce animals homozygous for a given integration site in order to both augment expression and eliminate the need for screening of animals by DNA analysis; crossing of separate homozygous lines to produce compound heterozygous or homozygous lines; and breeding to place the transgene on a distinct background that is appropriate for an experimental model of interest.

Transgenic animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

#### *Example 20: Knock-Out Animals*

Endogenous gene expression can also be reduced by inactivating or "knocking out" the gene and/or its promoter using targeted homologous recombination. (E.g., see Smithies et al., Nature 317:230-234 (1985); Thomas & Capecchi, Cell 51:503-512 (1987); Thompson et al., Cell 5:313-321 (1989); each of which is incorporated by reference herein in its entirety). For example, a mutant, non-functional polynucleotide of the invention (or a completely unrelated DNA sequence) flanked by DNA homologous to the endogenous polynucleotide sequence (either the coding regions or regulatory regions of the gene) can be used, with or without a selectable marker and/or a negative selectable marker, to transfect cells that express polypeptides of the invention *in vivo*. In another embodiment, techniques known in the art are used to generate knockouts in cells that contain, but do not express the gene of interest. Insertion of the DNA construct, via targeted homologous recombination, results in inactivation of the targeted gene. Such approaches are particularly suited in research and agricultural fields where modifications to embryonic stem cells can be used to generate animal offspring with an inactive targeted gene (e.g., see Thomas & Capecchi 1987 and Thompson 1989, *supra*). However this approach can be routinely adapted for use in humans provided the recombinant DNA constructs are directly administered or targeted to the required site *in vivo* using appropriate viral vectors that will be apparent to those of skill in the art.

In further embodiments of the invention, cells that are genetically engineered to express the polypeptides of the invention, or alternatively, that are genetically engineered not to express the polypeptides of the invention (e.g., knockouts) are administered to a patient *in vivo*. Such cells may be obtained from the patient (i.e., animal, including human) or an MHC compatible donor and can include, but are not limited to fibroblasts, bone marrow cells, blood cells (e.g., lymphocytes), adipocytes, muscle cells, endothelial cells etc. The cells are genetically engineered *in vitro* using recombinant DNA techniques to introduce the coding sequence of polypeptides of the invention into the cells, or alternatively, to disrupt the coding sequence and/or endogenous regulatory sequence associated with the polypeptides of the invention, e.g., by transduction (using viral vectors, and preferably vectors that integrate the transgene into the cell genome) or transfection procedures, including, but not limited to, the use of plasmids, cosmids, YACs, naked DNA, electroporation, liposomes, etc. The coding sequence of the polypeptides of the invention can be placed under the control of a strong constitutive or inducible promoter or promoter/enhancer to achieve expression, and



preferably secretion, of the polypeptides of the invention. The engineered cells which express and preferably secrete the polypeptides of the invention can be introduced into the patient systemically, e.g., in the circulation, or intraperitoneally.

Alternatively, the cells can be incorporated into a matrix and implanted in the body, e.g., genetically engineered fibroblasts can be implanted as part of a skin graft; genetically engineered endothelial cells can be implanted as part of a lymphatic or vascular graft. (See, for example, Anderson et al. U.S. Patent No. 5,399,349; and Mulligan & Wilson, U.S. Patent No. 5,460,959 each of which is incorporated by reference herein in its entirety).

When the cells to be administered are non-autologous or non-MHC compatible cells, they can be administered using well known techniques which prevent the development of a host immune response against the introduced cells. For example, the cells may be introduced in an encapsulated form which, while allowing for an exchange of components with the immediate extracellular environment, does not allow the introduced cells to be recognized by the host immune system.

Transgenic and "knock-out" animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

*Example 22: Assays Detecting Stimulation or Inhibition of B cell Proliferation and Differentiation*

Generation of functional humoral immune responses requires both soluble and cognate signaling between B-lineage cells and their microenvironment. Signals may impart a positive stimulus that allows a B-lineage cell to continue its programmed development, or a negative stimulus that instructs the cell to arrest its current developmental pathway. To date, numerous stimulatory and inhibitory signals have been found to influence B cell responsiveness including IL-2, IL-4, IL-5, IL-6, IL-7, IL10, IL-13, IL-14 and IL-15. Interestingly, these signals are by themselves weak effectors but can, in combination with various co-stimulatory proteins, induce activation, proliferation, differentiation, homing, tolerance and death among B cell populations.

One of the best studied classes of B-cell co-stimulatory proteins is the TNF-superfamily. Within this family CD40, CD27, and CD30 along with their respective ligands CD154, CD70, and CD153 have been found to regulate a variety of immune responses. Assays which allow for the detection and/or observation of the proliferation and differentiation of these B-cell populations and their precursors are valuable tools in determining the effects various proteins may have on these B-cell populations in terms of proliferation and differentiation. Listed below are two assays designed to allow for the detection of the differentiation, proliferation, or inhibition of B-cell populations and their precursors.

**In Vitro Assay-** Agonists or antagonists of the invention can be assessed for its ability to induce activation, proliferation, differentiation or inhibition and/or death in B-cell populations and their precursors. The activity of the agonists or antagonists of the invention on purified human tonsillar B cells, measured qualitatively over the dose range from 0.1 to 10,000 ng/mL, is assessed in a standard B-lymphocyte co-stimulation assay in which purified tonsillar B cells are cultured in the presence of either formalin-fixed *Staphylococcus aureus* Cowan I (SAC) or immobilized anti-human IgM antibody as the priming agent. Second signals such as IL-2 and IL-15 synergize with SAC and IgM crosslinking to elicit B cell proliferation as measured by tritiated-thymidine incorporation. Novel synergizing agents can be readily identified using this assay. The assay involves isolating human tonsillar B cells by magnetic bead (MACS) depletion of CD3-positive cells. The resulting cell population is greater than 95% B cells as assessed by expression of CD45R(B220).

Various dilutions of each sample are placed into individual wells of a 96-well plate to which are added  $10^5$  B-cells suspended in culture medium (RPMI 1640 containing 10% FBS,  $5 \times 10^{-5}$  M 2ME, 100U/ml penicillin, 10ug/ml streptomycin, and  $10^{-5}$  dilution of SAC) in a total volume of 150ul. Proliferation or inhibition is quantitated by a 20h pulse (1uCi/well) with 3H-thymidine (6.7 Ci/mM) beginning 72h post factor addition. The positive and negative controls are IL2 and medium respectively.

**In Vivo Assay-** BALB/c mice are injected (i.p.) twice per day with buffer only, or 2 mg/Kg of agonists or antagonists of the invention, or truncated forms thereof. Mice receive this treatment for 4 consecutive days, at which time they are sacrificed and various tissues and serum collected for analyses. Comparison of H&E sections from normal spleens and spleens treated with agonists or antagonists of the invention identify the results of the activity

of the agonists or antagonists on spleen cells, such as the diffusion of peri-arterial lymphatic sheaths, and/or significant increases in the nucleated cellularity of the red pulp regions, which may indicate the activation of the differentiation and proliferation of B-cell populations. Immunohistochemical studies using a B cell marker, anti-CD45R(B220), are used to  
5 determine whether any physiological changes to splenic cells, such as splenic disorganization, are due to increased B-cell representation within loosely defined B-cell zones that infiltrate established T-cell regions.

Flow cytometric analyses of the spleens from mice treated with agonist or antagonist is used to indicate whether the agonists or antagonists specifically increases the proportion of  
10 ThB+, CD45R(B220)dull B cells over that which is observed in control mice. Likewise, a predicted consequence of increased mature B-cell representation in vivo is a relative increase in serum Ig titers. Accordingly, serum IgM and IgA levels are compared between buffer and agonists or antagonists-treated mice.

The studies described in this example tested activity of agonists or antagonists of the  
15 invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

#### *Example 23: T Cell Proliferation Assay*

20 A CD3-induced proliferation assay is performed on PBMCs and is measured by the uptake of  $^3\text{H}$ -thymidine. The assay is performed as follows. Ninety-six well plates are coated with 100  $\mu\text{l}$ /well of mAb to CD3 (HIT3a, Pharmingen) or isotype-matched control mAb (B33.1) overnight at 4 degrees C (1  $\mu\text{g}/\text{ml}$  in .05M bicarbonate buffer, pH 9.5), then washed three times with PBS. PBMC are isolated by F/H gradient centrifugation from  
25 human peripheral blood and added to quadruplicate wells ( $5 \times 10^4/\text{well}$ ) of mAb coated plates in RPMI containing 10% FCS and P/S in the presence of varying concentrations of agonists or antagonists of the invention (total volume 200  $\mu\text{l}$ ). Relevant protein buffer and medium alone are controls. After 48 hr. culture at 37 degrees C, plates are spun for 2 min. at 1000 rpm and 100  $\mu\text{l}$  of supernatant is removed and stored  $-20$  degrees C for measurement of IL-2  
30 (or other cytokines) if effect on proliferation is observed. Wells are supplemented with 100  $\mu\text{l}$  of medium containing 0.5  $\mu\text{Ci}$  of  $^3\text{H}$ -thymidine and cultured at 37 degrees C for 18-24 hr. Wells are harvested and incorporation of  $^3\text{H}$ -thymidine used as a measure of proliferation.

Anti-CD3 alone is the positive control for proliferation. IL-2 (100 U/ml) is also used as a control which enhances proliferation. Control antibody which does not induce proliferation of T cells is used as the negative controls for the effects of agonists or antagonists of the invention.

5           The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 24: Effect of Agonists or Antagonists of the Invention on the Expression of MHC Class II, Costimulatory and Adhesion Molecules and Cell Differentiation of Monocytes and Monocyte-Derived Human Dendritic Cells*

Dendritic cells are generated by the expansion of proliferating precursors found in the peripheral blood: adherent PBMC or elutriated monocytic fractions are cultured for 7-10 days with GM-CSF (50 ng/ml) and IL-4 (20 ng/ml). These dendritic cells have the characteristic phenotype of immature cells (expression of CD1, CD80, CD86, CD40 and MHC class II antigens). Treatment with activating factors, such as TNF- $\alpha$ , causes a rapid change in surface phenotype (increased expression of MHC class I and II, costimulatory and adhesion molecules, downregulation of FC $\gamma$ RII, upregulation of CD83). These changes correlate with increased antigen-presenting capacity and with functional maturation of the dendritic cells.

FACS analysis of surface antigens is performed as follows. Cells are treated 1-3 days with increasing concentrations of agonist or antagonist of the invention or LPS (positive control), washed with PBS containing 1% BSA and 0.02 mM sodium azide, and then incubated with 1:20 dilution of appropriate FITC- or PE-labeled monoclonal antibodies for 30 minutes at 4 degrees C. After an additional wash, the labeled cells are analyzed by flow cytometry on a FACScan (Becton Dickinson).

Effect on the production of cytokines. Cytokines generated by dendritic cells, in particular IL-12, are important in the initiation of T-cell dependent immune responses. IL-12 strongly influences the development of Th1 helper T-cell immune response, and induces cytotoxic T and NK cell function. An ELISA is used to measure the IL-12 release as follows. Dendritic cells ( $10^6$ /ml) are treated with increasing concentrations of agonists or antagonists of the

invention for 24 hours. LPS (100 ng/ml) is added to the cell culture as positive control. Supernatants from the cell cultures are then collected and analyzed for IL-12 content using commercial ELISA kit (e.g., R & D Systems (Minneapolis, MN)). The standard protocols provided with the kits are used.

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Effect on the expression of MHC Class II, costimulatory and adhesion molecules. Three major families of cell surface antigens can be identified on monocytes: adhesion molecules, molecules involved in antigen presentation, and Fc receptor. Modulation of the expression of MHC class II antigens and other costimulatory molecules, such as B7 and ICAM-1, may result in changes in the antigen presenting capacity of monocytes and ability to induce T cell activation. Increase expression of Fc receptors may correlate with improved monocyte cytotoxic activity, cytokine release and phagocytosis.

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FACS analysis is used to examine the surface antigens as follows. Monocytes are treated 1-5 days with increasing concentrations of agonists or antagonists of the invention or LPS (positive control), washed with PBS containing 1% BSA and 0.02 mM sodium azide, and then incubated with 1:20 dilution of appropriate FITC- or PE-labeled monoclonal antibodies for 30 minutes at 4 degreesC. After an additional wash, the labeled cells are analyzed by flow cytometry on a FACScan (Becton Dickinson).

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Monocyte activation and/or increased survival. Assays for molecules that activate (or alternatively, inactivate) monocytes and/or increase monocyte survival (or alternatively, decrease monocyte survival) are known in the art and may routinely be applied to determine whether a molecule of the invention functions as an inhibitor or activator of monocytes. Agonists or antagonists of the invention can be screened using the three assays described below. For each of these assays, Peripheral blood mononuclear cells (PBMC) are purified from single donor leukopacks (American Red Cross, Baltimore, MD) by centrifugation through a Histopaque gradient (Sigma). Monocytes are isolated from PBMC by counterflow centrifugal elutriation.

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Monocyte Survival Assay. Human peripheral blood monocytes progressively lose viability when cultured in absence of serum or other stimuli. Their death results from internally regulated process (apoptosis). Addition to the culture of activating factors, such as TNF-alpha

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dramatically improves cell survival and prevents DNA fragmentation. Propidium iodide (PI) staining is used to measure apoptosis as follows. Monocytes are cultured for 48 hours in polypropylene tubes in serum-free medium (positive control), in the presence of 100 ng/ml TNF-alpha (negative control), and in the presence of varying concentrations of the compound to be tested. Cells are suspended at a concentration of  $2 \times 10^6$ /ml in PBS containing PI at a final concentration of 5 µg/ml, and then incubated at room temperature for 5 minutes before FACSscan analysis. PI uptake has been demonstrated to correlate with DNA fragmentation in this experimental paradigm.

Effect on cytokine release. An important function of monocytes/macrophages is their regulatory activity on other cellular populations of the immune system through the release of cytokines after stimulation. An ELISA to measure cytokine release is performed as follows. Human monocytes are incubated at a density of  $5 \times 10^5$  cells/ml with increasing concentrations of agonists or antagonists of the invention and under the same conditions, but in the absence of agonists or antagonists. For IL-12 production, the cells are primed overnight with IFN (100 U/ml) in presence of agonist or antagonist of the invention. LPS (10 ng/ml) is then added. Conditioned media are collected after 24h and kept frozen until use. Measurement of TNF-alpha, IL-10, MCP-1 and IL-8 is then performed using a commercially available ELISA kit (e. g, R & D Systems (Minneapolis, MN)) and applying the standard protocols provided with the kit.

Oxidative burst. Purified monocytes are plated in 96-w plate at  $2 \times 10^5$  cell/well. Increasing concentrations of agonists or antagonists of the invention are added to the wells in a total volume of 0.2 ml culture medium (RPMI 1640 + 10% FCS, glutamine and antibiotics). After 3 days incubation, the plates are centrifuged and the medium is removed from the wells. To the macrophage monolayers, 0.2 ml per well of phenol red solution (140 mM NaCl, 10 mM potassium phosphate buffer pH 7.0, 5.5 mM dextrose, 0.56 mM phenol red and 19 U/ml of HRP) is added, together with the stimulant (200 nM PMA). The plates are incubated at 37°C for 2 hours and the reaction is stopped by adding 20 µl 1N NaOH per well. The absorbance is read at 610 nm. To calculate the amount of  $H_2O_2$  produced by the macrophages, a standard curve of a  $H_2O_2$  solution of known molarity is performed for each experiment.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

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*Example 25: Biological Effects of Agonists or Antagonists of the Invention*

Astrocyte and Neuronal Assays.

Agonists or antagonists of the invention, expressed in *Escherichia coli* and purified  
10 as described above, can be tested for activity in promoting the survival, neurite outgrowth, or phenotypic differentiation of cortical neuronal cells and for inducing the proliferation of glial fibrillary acidic protein immunopositive cells, astrocytes. The selection of cortical cells for the bioassay is based on the prevalent expression of FGF-1 and FGF-2 in cortical structures and on the previously reported enhancement of cortical neuronal survival resulting from  
15 FGF-2 treatment. A thymidine incorporation assay, for example, can be used to elucidate an agonist or antagonist of the invention's activity on these cells.

Moreover, previous reports describing the biological effects of FGF-2 (basic FGF) on cortical or hippocampal neurons *in vitro* have demonstrated increases in both neuron survival and neurite outgrowth (Walicke et al., "Fibroblast growth factor promotes survival of  
20 dissociated hippocampal neurons and enhances neurite extension." *Proc. Natl. Acad. Sci. USA* 83:3012-3016. (1986), assay herein incorporated by reference in its entirety). However, reports from experiments done on PC-12 cells suggest that these two responses are not necessarily synonymous and may depend on not only which FGF is being tested but also on which receptor(s) are expressed on the target cells. Using the primary cortical neuronal  
25 culture paradigm, the ability of an agonist or antagonist of the invention to induce neurite outgrowth can be compared to the response achieved with FGF-2 using, for example, a thymidine incorporation assay.

Fibroblast and endothelial cell assays.

30 Human lung fibroblasts are obtained from Clonetics (San Diego, CA) and maintained in growth media from Clonetics. Dermal microvascular endothelial cells are obtained from

Cell Applications (San Diego, CA). For proliferation assays, the human lung fibroblasts and dermal microvascular endothelial cells can be cultured at 5,000 cells/well in a 96-well plate for one day in growth medium. The cells are then incubated for one day in 0.1% BSA basal medium. After replacing the medium with fresh 0.1% BSA medium, the cells are incubated with the test proteins for 3 days. Alamar Blue (Alamar Biosciences, Sacramento, CA) is added to each well to a final concentration of 10%. The cells are incubated for 4 hr. Cell viability is measured by reading in a CytoFluor fluorescence reader. For the PGE<sub>2</sub> assays, the human lung fibroblasts are cultured at 5,000 cells/well in a 96-well plate for one day. After a medium change to 0.1% BSA basal medium, the cells are incubated with FGF-2 or agonists or antagonists of the invention with or without IL-1 $\alpha$  for 24 hours. The supernatants are collected and assayed for PGE<sub>2</sub> by EIA kit (Cayman, Ann Arbor, MI). For the IL-6 assays, the human lung fibroblasts are cultured at 5,000 cells/well in a 96-well plate for one day. After a medium change to 0.1% BSA basal medium, the cells are incubated with FGF-2 or with or without agonists or antagonists of the invention IL-1 $\alpha$  for 24 hours. The supernatants are collected and assayed for IL-6 by ELISA kit (Endogen, Cambridge, MA).

Human lung fibroblasts are cultured with FGF-2 or agonists or antagonists of the invention for 3 days in basal medium before the addition of Alamar Blue to assess effects on growth of the fibroblasts. FGF-2 should show a stimulation at 10 - 2500 ng/ml which can be used to compare stimulation with agonists or antagonists of the invention.

#### Parkinson Models.

The loss of motor function in Parkinson's disease is attributed to a deficiency of striatal dopamine resulting from the degeneration of the nigrostriatal dopaminergic projection neurons. An animal model for Parkinson's that has been extensively characterized involves the systemic administration of 1-methyl-4 phenyl 1,2,3,6-tetrahydropyridine (MPTP). In the CNS, MPTP is taken-up by astrocytes and catabolized by monoamine oxidase B to 1-methyl-4-phenyl pyridine (MPP<sup>+</sup>) and released. Subsequently, MPP<sup>+</sup> is actively accumulated in dopaminergic neurons by the high-affinity reuptake transporter for dopamine. MPP<sup>+</sup> is then concentrated in mitochondria by the electrochemical gradient and selectively inhibits nicotinamide adenine disphosphate: ubiquinone oxidoreductionase (complex I), thereby interfering with electron transport and eventually generating oxygen radicals.



It has been demonstrated in tissue culture paradigms that FGF-2 (basic FGF) has trophic activity towards nigral dopaminergic neurons (Ferrari et al., Dev. Biol. 1989). Recently, Dr. Unsicker's group has demonstrated that administering FGF-2 in gel foam implants in the striatum results in the near complete protection of nigral dopaminergic neurons from the toxicity associated with MPTP exposure (Otto and Unsicker, J. Neuroscience, 1990).

Based on the data with FGF-2, agonists or antagonists of the invention can be evaluated to determine whether it has an action similar to that of FGF-2 in enhancing dopaminergic neuronal survival *in vitro* and it can also be tested *in vivo* for protection of dopaminergic neurons in the striatum from the damage associated with MPTP treatment. The potential effect of an agonist or antagonist of the invention is first examined *in vitro* in a dopaminergic neuronal cell culture paradigm. The cultures are prepared by dissecting the midbrain floor plate from gestation day 14 Wistar rat embryos. The tissue is dissociated with trypsin and seeded at a density of 200,000 cells/cm<sup>2</sup> on polyorthinine-laminin coated glass coverslips. The cells are maintained in Dulbecco's Modified Eagle's medium and F12 medium containing hormonal supplements (N1). The cultures are fixed with paraformaldehyde after 8 days *in vitro* and are processed for tyrosine hydroxylase, a specific marker for dopaminergic neurons, immunohistochemical staining. Dissociated cell cultures are prepared from embryonic rats. The culture medium is changed every third day and the factors are also added at that time.

Since the dopaminergic neurons are isolated from animals at gestation day 14, a developmental time which is past the stage when the dopaminergic precursor cells are proliferating, an increase in the number of tyrosine hydroxylase immunopositive neurons would represent an increase in the number of dopaminergic neurons surviving *in vitro*. Therefore, if an agonist or antagonist of the invention acts to prolong the survival of dopaminergic neurons, it would suggest that the agonist or antagonist may be involved in Parkinson's Disease.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 26: The Effect of Agonists or Antagonists of the Invention on the Growth of Vascular Endothelial Cells*

On day 1, human umbilical vein endothelial cells (HUVEC) are seeded at  $2-5 \times 10^4$  cells/35 mm dish density in M199 medium containing 4% fetal bovine serum (FBS), 16 units/ml heparin, and 50 units/ml endothelial cell growth supplements (ECGS, Biotechnology, Inc.). On day 2, the medium is replaced with M199 containing 10% FBS, 8 units/ml heparin. An agonist or antagonist of the invention, and positive controls, such as VEGF and basic FGF (bFGF) are added, at varying concentrations. On days 4 and 6, the medium is replaced. On day 8, cell number is determined with a Coulter Counter.

An increase in the number of HUVEC cells indicates that the compound of the invention may proliferate vascular endothelial cells, while a decrease in the number of HUVEC cell indicates that the compound of the invention inhibits vascular endothelial cells.

The studies described in this example tested activity of a polypeptide of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), agonists, and/or antagonists of the invention.

*Example 27: Rat Corneal Wound Healing Model*

This animal model shows the effect of an agonist or antagonist of the invention on neovascularization. The experimental protocol includes:

- a) Making a 1-1.5 mm long incision from the center of cornea into the stromal layer.
- b) Inserting a spatula below the lip of the incision facing the outer corner of the eye.
- c) Making a pocket (its base is 1-1.5 mm from the edge of the eye).
- d) Positioning a pellet, containing 50ng- 5ug of an agonist or antagonist of the invention, within the pocket.
- e) Treatment with an agonist or antagonist of the invention can also be applied topically to the corneal wounds in a dosage range of 20mg - 500mg (daily treatment for five days).

The studies described in this example tested activity of agonists or antagonists of the

invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 28: Diabetic Mouse and Glucocorticoid-Impaired Wound Healing Models*

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*A. Diabetic db+/db+ Mouse Model.*

To demonstrate that an agonist or antagonist of the invention accelerates the healing process, the genetically diabetic mouse model of wound healing is used. The full thickness wound healing model in the db+/db+ mouse is a well characterized, clinically relevant and  
10 reproducible model of impaired wound healing. Healing of the diabetic wound is dependent on formation of granulation tissue and re-epithelialization rather than contraction (Gartner, M.H. *et al.*, *J. Surg. Res.* 52:389 (1992); Greenhalgh, D.G. *et al.*, *Am. J. Pathol.* 136:1235 (1990)).

The diabetic animals have many of the characteristic features observed in Type II  
15 diabetes mellitus. Homozygous (db+/db+) mice are obese in comparison to their normal heterozygous (db+/+m) littermates. Mutant diabetic (db+/db+) mice have a single autosomal recessive mutation on chromosome 4 (db+) (Coleman *et al.* *Proc. Natl. Acad. Sci. USA* 77:283-293 (1982)). Animals show polyphagia, polydipsia and polyuria. Mutant diabetic mice (db+/db+) have elevated blood glucose, increased or normal insulin levels, and  
20 suppressed cell-mediated immunity (Mandel *et al.*, *J. Immunol.* 120:1375 (1978); Debray-Sachs, M. *et al.*, *Clin. Exp. Immunol.* 51(1):1-7 (1983); Leiter *et al.*, *Am. J. of Pathol.* 114:46-55 (1985)). Peripheral neuropathy, myocardial complications, and microvascular lesions, basement membrane thickening and glomerular filtration abnormalities have been described in these animals (Norido, F. *et al.*, *Exp. Neurol.* 83(2):221-232 (1984); Robertson *et al.*,  
25 *Diabetes* 29(1):60-67 (1980); Giacomelli *et al.*, *Lab Invest.* 40(4):460-473 (1979); Coleman, D.L., *Diabetes* 31 (Suppl):1-6 (1982)). These homozygous diabetic mice develop hyperglycemia that is resistant to insulin analogous to human type II diabetes (Mandel *et al.*, *J. Immunol.* 120:1375-1377 (1978)).

The characteristics observed in these animals suggests that healing in this model may  
30 be similar to the healing observed in human diabetes (Greenhalgh, *et al.*, *Am. J. of Pathol.* 136:1235-1246 (1990)).

Genetically diabetic female C57BL/KsJ (db+/db+) mice and their non-diabetic

(db+/+m) heterozygous littermates are used in this study (Jackson Laboratories). The animals are purchased at 6 weeks of age and are 8 weeks old at the beginning of the study. Animals are individually housed and received food and water ad libitum. All manipulations are performed using aseptic techniques. The experiments are conducted according to the rules and guidelines of Human Genome Sciences, Inc. Institutional Animal Care and Use Committee and the Guidelines for the Care and Use of Laboratory Animals.

Wounding protocol is performed according to previously reported methods (Tsuboi, R. and Rifkin, D.B., *J. Exp. Med.* 172:245-251 (1990)). Briefly, on the day of wounding, animals are anesthetized with an intraperitoneal injection of Avertin (0.01 mg/mL), 2,2,2-tribromoethanol and 2-methyl-2-butanol dissolved in deionized water. The dorsal region of the animal is shaved and the skin washed with 70% ethanol solution and iodine. The surgical area is dried with sterile gauze prior to wounding. An 8 mm full-thickness wound is then created using a Keyes tissue punch. Immediately following wounding, the surrounding skin is gently stretched to eliminate wound expansion. The wounds are left open for the duration of the experiment. Application of the treatment is given topically for 5 consecutive days commencing on the day of wounding. Prior to treatment, wounds are gently cleansed with sterile saline and gauze sponges.

Wounds are visually examined and photographed at a fixed distance at the day of surgery and at two day intervals thereafter. Wound closure is determined by daily measurement on days 1-5 and on day 8. Wounds are measured horizontally and vertically using a calibrated Jameson caliper. Wounds are considered healed if granulation tissue is no longer visible and the wound is covered by a continuous epithelium.

An agonist or antagonist of the invention is administered using at a range different doses, from 4mg to 500mg per wound per day for 8 days in vehicle. Vehicle control groups received 50mL of vehicle solution.

Animals are euthanized on day 8 with an intraperitoneal injection of sodium pentobarbital (300mg/kg). The wounds and surrounding skin are then harvested for histology and immunohistochemistry. Tissue specimens are placed in 10% neutral buffered formalin in tissue cassettes between biopsy sponges for further processing.

Three groups of 10 animals each (5 diabetic and 5 non-diabetic controls) are evaluated: 1) Vehicle placebo control, 2) untreated group, and 3) treated group.

Wound closure is analyzed by measuring the area in the vertical and horizontal axis and

obtaining the total square area of the wound. Contraction is then estimated by establishing the differences between the initial wound area (day 0) and that of post treatment (day 8). The wound area on day 1 is 64mm<sup>2</sup>, the corresponding size of the dermal punch. Calculations are made using the following formula:

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$$[\text{Open area on day 8}] - [\text{Open area on day 1}] / [\text{Open area on day 1}]$$

Specimens are fixed in 10% buffered formalin and paraffin embedded blocks are sectioned perpendicular to the wound surface (5mm) and cut using a Reichert-Jung microtome.

10 Routine hematoxylin-eosin (H&E) staining is performed on cross-sections of bisected wounds. Histologic examination of the wounds are used to assess whether the healing process and the morphologic appearance of the repaired skin is altered by treatment with an agonist or antagonist of the invention. This assessment included verification of the presence of cell accumulation, inflammatory cells, capillaries, fibroblasts, re-epithelialization and  
15 epidermal maturity (Greenhalgh, D.G. *et al.*, *Am. J. Pathol.* 136:1235 (1990)). A calibrated lens micrometer is used by a blinded observer.

Tissue sections are also stained immunohistochemically with a polyclonal rabbit anti-human keratin antibody using ABC Elite detection system. Human skin is used as a positive tissue control while non-immune IgG is used as a negative control. Keratinocyte growth is  
20 determined by evaluating the extent of reepithelialization of the wound using a calibrated lens micrometer.

Proliferating cell nuclear antigen/cyclin (PCNA) in skin specimens is demonstrated by using anti-PCNA antibody (1:50) with an ABC Elite detection system. Human colon cancer served as a positive tissue control and human brain tissue is used as a negative tissue  
25 control. Each specimen included a section with omission of the primary antibody and substitution with non-immune mouse IgG. Ranking of these sections is based on the extent of proliferation on a scale of 0-8, the lower side of the scale reflecting slight proliferation to the higher side reflecting intense proliferation.

Experimental data are analyzed using an unpaired t test. A p value of < 0.05 is  
30 considered significant.

#### *B. Steroid Impaired Rat Model*

The inhibition of wound healing by steroids has been well documented in various *in vitro* and *in vivo* systems (Wahl, Glucocorticoids and Wound healing. In: Anti-Inflammatory Steroid Action: Basic and Clinical Aspects. 280-302 (1989); Wahl *et al.*, *J. Immunol.* 115: 476-481 (1975); Werb *et al.*, *J. Exp. Med.* 147:1684-1694 (1978)). Glucocorticoids retard wound healing by inhibiting angiogenesis, decreasing vascular permeability (Ebert *et al.*, *An. Intern. Med.* 37:701-705 (1952)), fibroblast proliferation, and collagen synthesis (Beck *et al.*, *Growth Factors.* 5: 295-304 (1991); Haynes *et al.*, *J. Clin. Invest.* 61: 703-797 (1978)) and producing a transient reduction of circulating monocytes (Haynes *et al.*, *J. Clin. Invest.* 61: 703-797 (1978); Wahl, "Glucocorticoids and wound healing", In: Antiinflammatory Steroid Action: Basic and Clinical Aspects, Academic Press, New York, pp. 280-302 (1989)). The systemic administration of steroids to impaired wound healing is a well establish phenomenon in rats (Beck *et al.*, *Growth Factors.* 5: 295-304 (1991); Haynes *et al.*, *J. Clin. Invest.* 61: 703-797 (1978); Wahl, "Glucocorticoids and wound healing", In: Antiinflammatory Steroid Action: Basic and Clinical Aspects, Academic Press, New York, pp. 280-302 (1989); Pierce *et al.*, *Proc. Natl. Acad. Sci. USA* 86: 2229-2233 (1989)).

To demonstrate that an agonist or antagonist of the invention can accelerate the healing process, the effects of multiple topical applications of the agonist or antagonist on full thickness excisional skin wounds in rats in which healing has been impaired by the systemic administration of methylprednisolone is assessed.

Young adult male Sprague Dawley rats weighing 250-300 g (Charles River Laboratories) are used in this example. The animals are purchased at 8 weeks of age and are 9 weeks old at the beginning of the study. The healing response of rats is impaired by the systemic administration of methylprednisolone (17mg/kg/rat intramuscularly) at the time of wounding. Animals are individually housed and received food and water *ad libitum*. All manipulations are performed using aseptic techniques. This study is conducted according to the rules and guidelines of Human Genome Sciences, Inc. Institutional Animal Care and Use Committee and the Guidelines for the Care and Use of Laboratory Animals.

The wounding protocol is followed according to section A, above. On the day of wounding, animals are anesthetized with an intramuscular injection of ketamine (50 mg/kg) and xylazine (5 mg/kg). The dorsal region of the animal is shaved and the skin washed with 70% ethanol and iodine solutions. The surgical area is dried with sterile gauze prior to wounding. An 8 mm full-thickness wound is created using a Keyes tissue punch. The

wounds are left open for the duration of the experiment. Applications of the testing materials are given topically once a day for 7 consecutive days commencing on the day of wounding and subsequent to methylprednisolone administration. Prior to treatment, wounds are gently cleansed with sterile saline and gauze sponges.

5           Wounds are visually examined and photographed at a fixed distance at the day of wounding and at the end of treatment. Wound closure is determined by daily measurement on days 1-5 and on day 8. Wounds are measured horizontally and vertically using a calibrated Jameson caliper. Wounds are considered healed if granulation tissue is no longer visible and the wound is covered by a continuous epithelium.

10           The agonist or antagonist of the invention is administered using at a range different doses, from 4mg to 500mg per wound per day for 8 days in vehicle. Vehicle control groups received 50mL of vehicle solution.

          Animals are euthanized on day 8 with an intraperitoneal injection of sodium pentobarbital (300mg/kg). The wounds and surrounding skin are then harvested for  
15           histology. Tissue specimens are placed in 10% neutral buffered formalin in tissue cassettes between biopsy sponges for further processing.

          Four groups of 10 animals each (5 with methylprednisolone and 5 without glucocorticoid) are evaluated: 1) Untreated group 2) Vehicle placebo control 3) treated groups.

20           Wound closure is analyzed by measuring the area in the vertical and horizontal axis and obtaining the total area of the wound. Closure is then estimated by establishing the differences between the initial wound area (day 0) and that of post treatment (day 8). The wound area on day 1 is 64mm<sup>2</sup>, the corresponding size of the dermal punch. Calculations are made using the following formula:

25

$$[\text{Open area on day 8}] - [\text{Open area on day 1}] / [\text{Open area on day 1}]$$

Specimens are fixed in 10% buffered formalin and paraffin embedded blocks are sectioned perpendicular to the wound surface (5mm) and cut using an Olympus microtome. Routine  
30           hematoxylin-eosin (H&E) staining is performed on cross-sections of bisected wounds. Histologic examination of the wounds allows assessment of whether the healing process and the morphologic appearance of the repaired skin is improved by treatment with an agonist or

antagonist of the invention. A calibrated lens micrometer is used by a blinded observer to determine the distance of the wound gap.

Experimental data are analyzed using an unpaired t test. A p value of  $< 0.05$  is considered significant.

5       The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 29: Lymphadema Animal Model*

10

The purpose of this experimental approach is to create an appropriate and consistent lymphedema model for testing the therapeutic effects of an agonist or antagonist of the invention in lymphangiogenesis and re-establishment of the lymphatic circulatory system in the rat hind limb. Effectiveness is measured by swelling volume of the affected limb, quantification of the amount of lymphatic vasculature, total blood plasma protein, and histopathology. Acute lymphedema is observed for 7-10 days. Perhaps more importantly, the chronic progress of the edema is followed for up to 3-4 weeks.

15       Prior to beginning surgery, blood sample is drawn for protein concentration analysis. Male rats weighing approximately ~350g are dosed with Pentobarbital. Subsequently, the right legs are shaved from knee to hip. The shaved area is swabbed with gauze soaked in 70% EtOH. Blood is drawn for serum total protein testing. Circumference and volumetric measurements are made prior to injecting dye into paws after marking 2 measurement levels (0.5 cm above heel, at mid-pt of dorsal paw). The intradermal dorsum of both right and left paws are injected with 0.05 ml of 1% Evan's Blue. Circumference and volumetric measurements are then made following injection of dye into paws.

20       Using the knee joint as a landmark, a mid-leg inguinal incision is made circumferentially allowing the femoral vessels to be located. Forceps and hemostats are used to dissect and separate the skin flaps. After locating the femoral vessels, the lymphatic vessel that runs along side and underneath the vessel(s) is located. The main lymphatic vessels in this area are then electrically coagulated or suture ligated.

30       Using a microscope, muscles in back of the leg (near the semitendinosus and adductors) are bluntly dissected. The popliteal lymph node is then located. The 2 proximal



and 2 distal lymphatic vessels and distal blood supply of the popliteal node are then and ligated by suturing. The popliteal lymph node, and any accompanying adipose tissue, is then removed by cutting connective tissues.

Care is taken to control any mild bleeding resulting from this procedure. After lymphatics are occluded, the skin flaps are sealed by using liquid skin (Vetbond) (AJ Buck). The separated skin edges are sealed to the underlying muscle tissue while leaving a gap of ~0.5 cm around the leg. Skin also may be anchored by suturing to underlying muscle when necessary.

To avoid infection, animals are housed individually with mesh (no bedding). Recovering animals are checked daily through the optimal edematous peak, which typically occurred by day 5-7. The plateau edematous peak are then observed. To evaluate the intensity of the lymphedema, the circumference and volumes of 2 designated places on each paw before operation and daily for 7 days are measured. The effect plasma proteins on lymphedema is determined and whether protein analysis is a useful testing perimeter is also investigated. The weights of both control and edematous limbs are evaluated at 2 places. Analysis is performed in a blind manner.

Circumference Measurements: Under brief gas anesthetic to prevent limb movement, a cloth tape is used to measure limb circumference. Measurements are done at the ankle bone and dorsal paw by 2 different people then those 2 readings are averaged. Readings are taken from both control and edematous limbs.

Volumetric Measurements: On the day of surgery, animals are anesthetized with Pentobarbital and are tested prior to surgery. For daily volumetrics animals are under brief halothane anesthetic (rapid immobilization and quick recovery), both legs are shaved and equally marked using waterproof marker on legs. Legs are first dipped in water, then dipped into instrument to each marked level then measured by Buxco edema software(Chen/Victor). Data is recorded by one person, while the other is dipping the limb to marked area.

Blood-plasma protein measurements: Blood is drawn, spun, and serum separated prior to surgery and then at conclusion for total protein and Ca<sup>2+</sup> comparison.

Limb Weight Comparison: After drawing blood, the animal is prepared for tissue collection. The limbs are amputated using a quillitine, then both experimental and control legs are cut at the ligature and weighed. A second weighing is done as the tibio-cacaneal joint is disarticulated and the foot is weighed.

Histological Preparations: The transverse muscle located behind the knee (popliteal) area is dissected and arranged in a metal mold, filled with freezeGel, dipped into cold methylbutane, placed into labeled sample bags at - 80EC until sectioning. Upon sectioning, the muscle is observed under fluorescent microscopy for lymphatics..

- 5 The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 30: Suppression of TNF alpha-induced adhesion molecule expression by a Agonist or Antagonist of the Invention*

- 15 The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

Tumor necrosis factor alpha (TNF-a), a potent proinflammatory cytokine, is a stimulator of all three CAMs on endothelial cells and may be involved in a wide variety of inflammatory responses, often resulting in a pathological outcome.

- 25 The potential of an agonist or antagonist of the invention to mediate a suppression of TNF-a induced CAM expression can be examined. A modified ELISA assay which uses ECs as a solid phase absorbent is employed to measure the amount of CAM expression on TNF-a treated ECs when co-stimulated with a member of the FGF family of proteins.

- 30 To perform the experiment, human umbilical vein endothelial cell (HUVEC) cultures are obtained from pooled cord harvests and maintained in growth medium (EGM-2; Clonetics, San Diego, CA) supplemented with 10% FCS and 1% penicillin/streptomycin in a 37 degree C humidified incubator containing 5% CO<sub>2</sub>. HUVECs are seeded in 96-well

plates at concentrations of  $1 \times 10^4$  cells/well in EGM medium at 37 degree C for 18-24 hrs or until confluent. The monolayers are subsequently washed 3 times with a serum-free solution of RPMI-1640 supplemented with 100 U/ml penicillin and 100 mg/ml streptomycin, and treated with a given cytokine and/or growth factor(s) for 24 h at 37 degree C. Following incubation, the cells are then evaluated for CAM expression.

Human Umbilical Vein Endothelial cells (HUVECs) are grown in a standard 96 well plate to confluence. Growth medium is removed from the cells and replaced with 90 ul of 199 Medium (10% FBS). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10 ul volumes). Plates are incubated at 37 degree C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100  $\mu$ l of 0.1% paraformaldehyde-PBS(with  $\text{Ca}^{++}$  and  $\text{Mg}^{++}$ ) is added to each well. Plates are held at 4°C for 30 min.

Fixative is then removed from the wells and wells are washed 1X with PBS(+Ca,Mg)+0.5% BSA and drained. Do not allow the wells to dry. Add 10  $\mu$ l of diluted primary antibody to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10  $\mu$ g/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA.

Then add 20  $\mu$ l of diluted ExtrAvidin-Alkaline Phosphatase (1:5,000 dilution) to each well and incubated at 37°C for 30 min. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA. 1 tablet of p-Nitrophenol Phosphate pNPP is dissolved in 5 ml of glycine buffer (pH 10.4). 100  $\mu$ l of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphatase in glycine buffer:  $1:5,000 (10^0) > 10^{-0.5} > 10^{-1} > 10^{-1.5}$ . 5  $\mu$ l of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100  $\mu$ l of pNPP reagent must then be added to each of the standard wells. The plate must be incubated at 37°C for 4h. A volume of 50  $\mu$ l of 3M NaOH is added to all wells. The results are quantified on a plate reader at 405 nm. The background subtraction option is used on blank wells filled with glycine buffer only. The template is set up to indicate the concentration of AP-conjugate in each standard well [ 5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

The studies described in this example tested activity of agonists or antagonists of the

invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 31: Production Of Polypeptide of the Invention For High-Throughput Screening Assays*

The following protocol produces a supernatant containing polypeptide of the present invention to be tested. This supernatant can then be used in the Screening Assays described in Examples 33-42.

First, dilute Poly-D-Lysine (644 587 Boehringer-Mannheim) stock solution (1mg/ml in PBS) 1:20 in PBS (w/o calcium or magnesium 17-516F Biowhittaker) for a working solution of 50ug/ml. Add 200 ul of this solution to each well (24 well plates) and incubate at RT for 20 minutes. Be sure to distribute the solution over each well (note: a 12-channel pipetter may be used with tips on every other channel). Aspirate off the Poly-D-Lysine solution and rinse with 1ml PBS (Phosphate Buffered Saline). The PBS should remain in the well until just prior to plating the cells and plates may be poly-lysine coated in advance for up to two weeks.

Plate 293T cells (do not carry cells past P+20) at  $2 \times 10^5$  cells/well in .5ml DMEM(Dulbecco's Modified Eagle Medium)(with 4.5 G/L glucose and L-glutamine (12-604F Biowhittaker))/10% heat inactivated FBS(14-503F Biowhittaker)/1x Penstrep(17-602E Biowhittaker). Let the cells grow overnight.

The next day, mix together in a sterile solution basin: 300 ul Lipofectamine (18324-012 Gibco/BRL) and 5ml Optimem I (31985070 Gibco/BRL)/96-well plate. With a small volume multi-channel pipetter, aliquot approximately 2ug of an expression vector containing a polynucleotide insert, produced by the methods described in Examples 8-10, into an appropriately labeled 96-well round bottom plate. With a multi-channel pipetter, add 50ul of the Lipofectamine/Optimem I mixture to each well. Pipette up and down gently to mix. Incubate at RT 15-45 minutes. After about 20 minutes, use a multi-channel pipetter to add 150ul Optimem I to each well. As a control, one plate of vector DNA lacking an insert should be transfected with each set of transfections.

Preferably, the transfection should be performed by tag-teaming the following tasks. By tag-teaming, hands on time is cut in half, and the cells do not spend too much time on

PBS. First, person A aspirates off the media from four 24-well plates of cells, and then person B rinses each well with .5-1ml PBS. Person A then aspirates off PBS rinse, and person B, using a 12-channel pipetter with tips on every other channel, adds the 200ul of DNA/Lipofectamine/Optimem 1 complex to the odd wells first, then to the even wells, to each row on the 24-well plates. Incubate at 37 degree C for 6 hours.

While cells are incubating, prepare appropriate media, either 1%BSA in DMEM with 1x penstrep, or HGS CHO-5 media (116.6 mg/L of CaCl<sub>2</sub> (anhyd); 0.00130 mg/L CuSO<sub>4</sub>·5H<sub>2</sub>O; 0.050 mg/L of Fe(NO<sub>3</sub>)<sub>3</sub>·9H<sub>2</sub>O; 0.417 mg/L of FeSO<sub>4</sub>·7H<sub>2</sub>O; 311.80 mg/L of KCl; 28.64 mg/L of MgCl<sub>2</sub>; 48.84 mg/L of MgSO<sub>4</sub>; 6995.50 mg/L of NaCl; 2400.0 mg/L of NaHCO<sub>3</sub>; 62.50 mg/L of NaH<sub>2</sub>PO<sub>4</sub>·H<sub>2</sub>O; 71.02 mg/L of Na<sub>2</sub>HPO<sub>4</sub>; .4320 mg/L of ZnSO<sub>4</sub>·7H<sub>2</sub>O; .002 mg/L of Arachidonic Acid ; 1.022 mg/L of Cholesterol; .070 mg/L of DL-alpha-Tocopherol-Acetate; 0.0520 mg/L of Linoleic Acid; 0.010 mg/L of Linolenic Acid; 0.010 mg/L of Myristic Acid; 0.010 mg/L of Oleic Acid; 0.010 mg/L of Palmitic Acid; 0.010 mg/L of Palmitic Acid; 100 mg/L of Pluronic F-68; 0.010 mg/L of Stearic Acid; 2.20 mg/L of Tween 80; 4551 mg/L of D-Glucose; 130.85 mg/ml of L- Alanine; 147.50 mg/ml of L-Arginine-HCL; 7.50 mg/ml of L-Asparagine-H<sub>2</sub>O; 6.65 mg/ml of L-Aspartic Acid; 29.56 mg/ml of L-Cystine-2HCL-H<sub>2</sub>O; 31.29 mg/ml of L-Cystine-2HCL; 7.35 mg/ml of L-Glutamic Acid; 365.0 mg/ml of L-Glutamine; 18.75 mg/ml of Glycine; 52.48 mg/ml of L-Histidine-HCL-H<sub>2</sub>O; 106.97 mg/ml of L-Isoleucine; 111.45 mg/ml of L-Leucine; 163.75 mg/ml of L-Lysine HCL; 32.34 mg/ml of L-Methionine; 68.48 mg/ml of L-Phenylalanine; 40.0 mg/ml of L-Proline; 26.25 mg/ml of L-Serine; 101.05 mg/ml of L-Threonine; 19.22 mg/ml of L-Tryptophan; 91.79 mg/ml of L-Tyrosine-2Na-2H<sub>2</sub>O; and 99.65 mg/ml of L-Valine; 0.0035 mg/L of Biotin; 3.24 mg/L of D-Ca Pantothenate; 11.78 mg/L of Choline Chloride; 4.65 mg/L of Folic Acid; 15.60 mg/L of i-Inositol; 3.02 mg/L of Niacinamide; 3.00 mg/L of Pyridoxal HCL; 0.031 mg/L of Pyridoxine HCL; 0.319 mg/L of Riboflavin; 3.17 mg/L of Thiamine HCL; 0.365 mg/L of Thymidine; 0.680 mg/L of Vitamin B<sub>12</sub>; 25 mM of HEPES Buffer; 2.39 mg/L of Na Hypoxanthine; 0.105 mg/L of Lipoic Acid; 0.081 mg/L of Sodium Putrescine-2HCL; 55.0 mg/L of Sodium Pyruvate; 0.0067 mg/L of Sodium Selenite; 20uM of Ethanolamine; 0.122 mg/L of Ferric Citrate; 41.70 mg/L of Methyl-B-Cyclodextrin complexed with Linoleic Acid; 33.33 mg/L of Methyl-B-Cyclodextrin complexed with Oleic Acid; 10 mg/L of Methyl-B-Cyclodextrin complexed with Retinal Acetate. Adjust

osmolarity to 327 mOsm) with 2mm glutamine and 1x penstrep. (BSA (81-068-3 Bayer) 100gm dissolved in 1L DMEM for a 10% BSA stock solution). Filter the media and collect 50 ul for endotoxin assay in 15ml polystyrene conical.

5 The transfection reaction is terminated, preferably by tag-teaming, at the end of the incubation period. Person A aspirates off the transfection media, while person B adds 1.5ml appropriate media to each well. Incubate at 37 degree C for 45 or 72 hours depending on the media used: 1%BSA for 45 hours or CHO-5 for 72 hours.

10 On day four, using a 300ul multichannel pipetter, aliquot 600ul in one 1ml deep well plate and the remaining supernatant into a 2ml deep well. The supernatants from each well can then be used in the assays described in Examples 33-40.

It is specifically understood that when activity is obtained in any of the assays described below using a supernatant, the activity originates from either the polypeptide of the present invention directly (e.g., as a secreted protein) or by polypeptide of the present invention inducing expression of other proteins, which are then secreted into the supernatant.  
15 Thus, the invention further provides a method of identifying the protein in the supernatant characterized by an activity in a particular assay.

*Example 32: Construction of GAS Reporter Construct*

20 One signal transduction pathway involved in the differentiation and proliferation of cells is called the Jaks-STATs pathway. Activated proteins in the Jaks-STATs pathway bind to gamma activation site "GAS" elements or interferon-sensitive responsive element ("ISRE"), located in the promoter of many genes. The binding of a protein to these elements alter the expression of the associated gene.

25 GAS and ISRE elements are recognized by a class of transcription factors called Signal Transducers and Activators of Transcription, or "STATs." There are six members of the STATs family. Stat1 and Stat3 are present in many cell types, as is Stat2 (as response to IFN-alpha is widespread). Stat4 is more restricted and is not in many cell types though it has been found in T helper class I, cells after treatment with IL-12. Stat5 was originally called  
30 mammary growth factor, but has been found at higher concentrations in other cells including myeloid cells. It can be activated in tissue culture cells by many cytokines.

The STATs are activated to translocate from the cytoplasm to the nucleus upon

tyrosine phosphorylation by a set of kinases known as the Janus Kinase (“Jaks”) family. Jaks represent a distinct family of soluble tyrosine kinases and include Tyk2, Jak1, Jak2, and Jak3. These kinases display significant sequence similarity and are generally catalytically inactive in resting cells.

5           The Jaks are activated by a wide range of receptors summarized in the Table below. (Adapted from review by Schidler and Darnell, *Ann. Rev. Biochem.* 64:621-51 (1995).) A cytokine receptor family, capable of activating Jaks, is divided into two groups: (a) Class 1 includes receptors for IL-2, IL-3, IL-4, IL-6, IL-7, IL-9, IL-11, IL-12, IL-15, Epo, PRL, GH, G-CSF, GM-CSF, LIF, CNTF, and thrombopoietin; and (b) Class 2 includes IFN- $\alpha$ , IFN- $\gamma$ ,  
10   and IL-10. The Class 1 receptors share a conserved cysteine motif (a set of four conserved cysteines and one tryptophan) and a WSXWS motif (a membrane proximal region encoding Trp-Ser-Xxx-Trp-Ser (SEQ ID NO:1686)).

          Thus, on binding of a ligand to a receptor, Jaks are activated, which in turn activate STATs, which then translocate and bind to GAS elements. This entire process is  
15   encompassed in the Jaks-STATs signal transduction pathway.

          Therefore, activation of the Jaks-STATs pathway, reflected by the binding of the GAS or the ISRE element, can be used to indicate proteins involved in the proliferation and differentiation of cells. For example, growth factors and cytokines are known to activate the Jaks-STATs pathway. (See Table below.) Thus, by using GAS elements linked to reporter  
20   molecules, activators of the Jaks-STATs pathway can be identified.

509

	<u>Ligand</u>	<u>tyk2</u>	<u>JAKs</u>			<u>STATs GAS(elements) or ISRE</u>	
			<u>Jak1</u>	<u>Jak2</u>	<u>Jak3</u>		
	<u>IFN family</u>						
5	IFN-a/B	+	+	-	-	1,2,3	ISRE
	IFN-g (IRF1>Lys6>IFP)		+	+	-	1	GAS
	IL-10	+	?	?	-	1,3	
10	<u>gp130 family</u>						
	IL-6 (Pleiotrohic) (IRF1>Lys6>IFP)	+	+	+	?	1,3	GAS
	IL-11(Pleiotrohic)	?	+	?	?	1,3	
	OnM(Pleiotrohic)	?	+	+	?	1,3	
15	LIF(Pleiotrohic)	?	+	+	?	1,3	
	CNTF(Pleiotrohic)	-/+	+	+	?	1,3	
	G-CSF(Pleiotrohic)	?	+	?	?	1,3	
	IL-12(Pleiotrohic)	+	-	+	+	1,3	
20	<u>g-C family</u>						
	IL-2 (lymphocytes)	-	+	-	+	1,3,5	GAS
	IL-4 (lymph/myeloid) >>Ly6)(IgH)	-	+	-	+	6	GAS (IRF1 = IFP
	IL-7 (lymphocytes)	-	+	-	+	5	GAS
25	IL-9 (lymphocytes)	-	+	-	+	5	GAS
	IL-13 (lymphocyte)	-	+	?	?	6	GAS
	IL-15	?	+	?	+	5	GAS
	<u>gp140 family</u>						
30	IL-3 (myeloid) (IRF1>IFP>>Ly6)	-	-	+	-	5	GAS
	IL-5 (myeloid)	-	-	+	-	5	GAS
	GM-CSF (myeloid)	-	-	+	-	5	GAS



<u>Growth hormone family</u>						
	GH	?	-	+	-	5
	PRL	?	+/-	+	-	1,3,5
5	EPO	?	-	+	-	5
	CAS>IRF1=IFP>>Ly6)					GAS(B-
<u>Receptor Tyrosine Kinases</u>						
	EGF	?	+	+	-	1,3
						GAS (IRF1)
0						
	PDGF	?	+	+	-	1,3
	CSF-1	?	+	+	-	1,3
						GAS (not IRF1)

To construct a synthetic GAS containing promoter element, which is used in the Biological Assays described in Examples 33-34, a PCR based strategy is employed to generate a GAS-SV40 promoter sequence. The 5' primer contains four tandem copies of the GAS binding site found in the IRF1 promoter and previously demonstrated to bind STATs upon induction with a range of cytokines (Rothman et al., Immunity 1:457-468 (1994).), although other GAS or ISRE elements can be used instead. The 5' primer also contains 18bp of sequence complementary to the SV40 early promoter sequence and is flanked with an XhoI site. The sequence of the 5' primer is:

5':GCGCCTCGAGATTTCCTCCGAAATCTAGATTTCCTCCGAAATGATTTCCTCCGAAATGATTTCCTCCGAAATATCTGCCATCTCAATTAG:3' (SEQ ID NO:1687)

The downstream primer is complementary to the SV40 promoter and is flanked with a Hind III site: 5':GCGGCAAGCTTTTGTCAAAGCCTAGGC:3' (SEQ ID NO:1688)

PCR amplification is performed using the SV40 promoter template present in the B-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is digested with XhoI/Hind III and subcloned into BLSK2-. (Stratagene.) Sequencing with forward and reverse primers confirms that the insert contains the following sequence:

5':CTCGAGATTTCCTCCGAAATCTAGATTTCCTCCGAAATGATTTCCTCCGAAATGATTTCCTCCGAAATATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCGCCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAAGCTT:3' (SEQ ID NO:1689)

With this GAS promoter element linked to the SV40 promoter, a GAS:SEAP2 reporter construct is next engineered. Here, the reporter molecule is a secreted alkaline phosphatase, or "SEAP." Clearly, however, any reporter molecule can be instead of SEAP, in this or in any of the other Examples. Well known reporter molecules that can be used instead of SEAP include chloramphenicol

acetyltransferase (CAT), luciferase, alkaline phosphatase, B-galactosidase, green fluorescent protein (GFP), or any protein detectable by an antibody.

The above sequence confirmed synthetic GAS-SV40 promoter element is subcloned into the pSEAP-Promoter vector obtained from Clontech using HindIII and  
5 XhoI, effectively replacing the SV40 promoter with the amplified GAS:SV40 promoter element, to create the GAS-SEAP vector. However, this vector does not contain a neomycin resistance gene, and therefore, is not preferred for mammalian expression systems.

Thus, in order to generate mammalian stable cell lines expressing the GAS-  
10 SEAP reporter, the GAS-SEAP cassette is removed from the GAS-SEAP vector using SalI and NotI, and inserted into a backbone vector containing the neomycin resistance gene, such as pGFP-1 (Clontech), using these restriction sites in the multiple cloning site, to create the GAS-SEAP/Neo vector. Once this vector is transfected into mammalian cells, this vector can then be used as a reporter molecule for GAS binding  
15 as described in Examples 33-34.

Other constructs can be made using the above description and replacing GAS with a different promoter sequence. For example, construction of reporter molecules containing NFK-B and EGR promoter sequences are described in Examples 35 and 36. However, many other promoters can be substituted using the protocols described  
20 in these Examples. For instance, SRE, IL-2, NFAT, or Osteocalcin promoters can be substituted, alone or in combination (e.g., GAS/NF-KB/EGR, GAS/NF-KB, IL-2/NFAT, or NF-KB/GAS). Similarly, other cell lines can be used to test reporter construct activity, such as HELA (epithelial), HUVEC (endothelial), Reh (B-cell), Saos-2 (osteoblast), HUVAC (aortic), or Cardiomyocyte.

25

*Example 33: High-Throughput Screening Assay for T-cell Activity.*

The following protocol is used to assess T-cell activity by identifying factors, and determining whether supernate containing a polypeptide of the invention  
30 proliferates and/or differentiates T-cells. T-cell activity is assessed using the

GAS/SEAP/Neo construct produced in Example 32. Thus, factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The T-cell used in this assay is Jurkat T-cells (ATCC Accession No. TIB-152), although Molt-3 cells (ATCC Accession No. CRL-1552) and Molt-4 cells (ATCC  
5 Accession No. CRL-1582) cells can also be used.

Jurkat T-cells are lymphoblastic CD4+ Th1 helper cells. In order to generate stable cell lines, approximately 2 million Jurkat cells are transfected with the GAS-SEAP/neo vector using DMRIE-C (Life Technologies)(transfection procedure described below). The transfected cells are seeded to a density of approximately  
10 20,000 cells per well and transfectants resistant to 1 mg/ml gentamicin selected. Resistant colonies are expanded and then tested for their response to increasing concentrations of interferon gamma. The dose response of a selected clone is demonstrated.

Specifically, the following protocol will yield sufficient cells for 75 wells  
15 containing 200 ul of cells. Thus, it is either scaled up, or performed in multiple to generate sufficient cells for multiple 96 well plates. Jurkat cells are maintained in RPMI + 10% serum with 1%Pen-Strep. Combine 2.5 mls of OPTI-MEM (Life Technologies) with 10 ug of plasmid DNA in a T25 flask. Add 2.5 ml OPTI-MEM containing 50 ul of DMRIE-C and incubate at room temperature for 15-45 mins.

20 During the incubation period, count cell concentration, spin down the required number of cells ( $10^7$  per transfection), and resuspend in OPTI-MEM to a final concentration of  $10^7$  cells/ml. Then add 1ml of  $1 \times 10^7$  cells in OPTI-MEM to T25 flask and incubate at 37 degree C for 6 hrs. After the incubation, add 10 ml of RPMI + 15% serum.

25 The Jurkat:GAS-SEAP stable reporter lines are maintained in RPMI + 10% serum, 1 mg/ml Gentamicin, and 1% Pen-Strep. These cells are treated with supernatants containing polypeptide of the present invention or polypeptide of the present invention induced polypeptides as produced by the protocol described in Example 31.

30 On the day of treatment with the supernatant, the cells should be washed and

resuspended in fresh RPMI + 10% serum to a density of 500,000 cells per ml. The exact number of cells required will depend on the number of supernatants being screened. For one 96 well plate, approximately 10 million cells (for 10 plates, 100 million cells) are required.

5           Transfer the cells to a triangular reservoir boat, in order to dispense the cells into a 96 well dish, using a 12 channel pipette. Using a 12 channel pipette, transfer 200 ul of cells into each well (therefore adding 100, 000 cells per well).

          After all the plates have been seeded, 50 ul of the supernatants are transferred directly from the 96 well plate containing the supernatants into each well using a 12  
10   channel pipette. In addition, a dose of exogenous interferon gamma (0.1, 1.0, 10 ng) is added to wells H9, H10, and H11 to serve as additional positive controls for the assay.

          The 96 well dishes containing Jurkat cells treated with supernatants are placed in an incubator for 48 hrs (note: this time is variable between 48-72 hrs). 35 ul  
15   samples from each well are then transferred to an opaque 96 well plate using a 12 channel pipette. The opaque plates should be covered (using sellophene covers) and stored at -20 degree C until SEAP assays are performed according to Example 37. The plates containing the remaining treated cells are placed at 4 degree C and serve as a source of material for repeating the assay on a specific well if desired.

20           As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate Jurkat T cells. Over 30 fold induction is typically observed in the positive control wells.

          The above protocol may be used in the generation of both transient, as well as, stable transfected cells, which would be apparent to those of skill in the art.

25

*Example 34: High-Throughput Screening Assay Identifying Myeloid Activity*

          The following protocol is used to assess myeloid activity of polypeptide of the present invention by determining whether polypeptide of the present invention  
30   proliferates and/or differentiates myeloid cells. Myeloid cell activity is assessed using

the GAS/SEAP/Neo construct produced in Example 32. Thus, factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The myeloid cell used in this assay is U937, a pre-monocyte cell line, although TF-1, HL60, or KG1 can be used.

5        To transiently transfect U937 cells with the GAS/SEAP/Neo construct produced in Example 32, a DEAE-Dextran method (Kharbanda et. al., 1994, Cell Growth & Differentiation, 5:259-265) is used. First, harvest  $2 \times 10^7$  U937 cells and wash with PBS. The U937 cells are usually grown in RPMI 1640 medium containing 10% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml  
10       penicillin and 100 mg/ml streptomycin.

Next, suspend the cells in 1 ml of 20 mM Tris-HCl (pH 7.4) buffer containing 0.5 mg/ml DEAE-Dextran, 8 ug GAS-SEAP2 plasmid DNA, 140 mM NaCl, 5 mM KCl, 375 uM  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$ , 1 mM  $\text{MgCl}_2$ , and 675 uM  $\text{CaCl}_2$ . Incubate at 37 degrees C for 45 min.

15       Wash the cells with RPMI 1640 medium containing 10% FBS and then resuspend in 10 ml complete medium and incubate at 37 degree C for 36 hr.

The GAS-SEAP/U937 stable cells are obtained by growing the cells in 400 ug/ml G418. The G418-free medium is used for routine growth but every one to two months, the cells should be re-grown in 400 ug/ml G418 for couple of passages.

20       These cells are tested by harvesting  $1 \times 10^8$  cells (this is enough for ten 96-well plates assay) and wash with PBS. Suspend the cells in 200 ml above described growth medium, with a final density of  $5 \times 10^5$  cells/ml. Plate 200 ul cells per well in the 96-well plate (or  $1 \times 10^5$  cells/well).

Add 50 ul of the supernatant prepared by the protocol described in Example  
25       31. Incubate at 37 degree C for 48 to 72 hr. As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate U937 cells. Over 30 fold induction is typically observed in the positive control wells. SEAP assay the supernatant according to the protocol described in Example 37.

30       *Example 35: High-Throughput Screening Assay Identifying Neuronal Activity.*

When cells undergo differentiation and proliferation, a group of genes are activated through many different signal transduction pathways. One of these genes, EGR1 (early growth response gene 1), is induced in various tissues and cell types upon activation. The promoter of EGR1 is responsible for such induction. Using the EGR1 promoter linked to reporter molecules, activation of cells can be assessed by polypeptide of the present invention.

Particularly, the following protocol is used to assess neuronal activity in PC12 cell lines. PC12 cells (rat phenochromocytoma cells) are known to proliferate and/or differentiate by activation with a number of mitogens, such as TPA (tetradecanoyl phorbol acetate), NGF (nerve growth factor), and EGF (epidermal growth factor). The EGR1 gene expression is activated during this treatment. Thus, by stably transfecting PC12 cells with a construct containing an EGR promoter linked to SEAP reporter, activation of PC12 cells by polypeptide of the present invention can be assessed.

The EGR/SEAP reporter construct can be assembled by the following protocol. The EGR-1 promoter sequence (-633 to +1)(Sakamoto K et al., Oncogene 6:867-871 (1991)) can be PCR amplified from human genomic DNA using the following primers:

5' GCGCTCGAGGGATGACAGCGATAGAACCCCGG -3' (SEQ ID NO: 1690)

5' GCGAAGCTTCGCGACTCCCCGGATCCGCCTC-3' (SEQ ID NO: 1691)

Using the GAS:SEAP/Neo vector produced in Example 32, EGR1 amplified product can then be inserted into this vector. Linearize the GAS:SEAP/Neo vector using restriction enzymes XhoI/HindIII, removing the GAS/SV40 stuffer. Restrict the EGR1 amplified product with these same enzymes. Ligate the vector and the EGR1 promoter.

To prepare 96 well-plates for cell culture, two mls of a coating solution (1:30 dilution of collagen type I (Upstate Biotech Inc. Cat#08-115) in 30% ethanol (filter

sterilized)) is added per one 10 cm plate or 50 ml per well of the 96-well plate, and allowed to air dry for 2 hr.

PC12 cells are routinely grown in RPMI-1640 medium (Bio Whittaker) containing 10% horse serum (JRH BIOSCIENCES, Cat. # 12449-78P), 5% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml penicillin and 100 ug/ml streptomycin on a precoated 10 cm tissue culture dish. One to four split is done every three to four days. Cells are removed from the plates by scraping and resuspended with pipetting up and down for more than 15 times.

Transfect the EGR/SEAP/Neo construct into PC12 using the Lipofectamine protocol described in Example 31. EGR-SEAP/PC12 stable cells are obtained by growing the cells in 300 ug/ml G418. The G418-free medium is used for routine growth but every one to two months, the cells should be re-grown in 300 ug/ml G418 for couple of passages.

To assay for neuronal activity, a 10 cm plate with cells around 70 to 80% confluent is screened by removing the old medium. Wash the cells once with PBS (Phosphate buffered saline). Then starve the cells in low serum medium (RPMI-1640 containing 1% horse serum and 0.5% FBS with antibiotics) overnight.

The next morning, remove the medium and wash the cells with PBS. Scrape off the cells from the plate, suspend the cells well in 2 ml low serum medium. Count the cell number and add more low serum medium to reach final cell density as  $5 \times 10^5$  cells/ml.

Add 200 ul of the cell suspension to each well of 96-well plate (equivalent to  $1 \times 10^5$  cells/well). Add 50 ul supernatant produced by Example 31, 37 degree C for 48 to 72 hr. As a positive control, a growth factor known to activate PC12 cells through EGR can be used, such as 50 ng/ul of Neuronal Growth Factor (NGF). Over fifty-fold induction of SEAP is typically seen in the positive control wells. SEAP assay the supernatant according to Example 37.

*Example 36: High-Throughput Screening Assay for T-cell Activity*



NF-KB (Nuclear Factor KB) is a transcription factor activated by a wide variety of agents including the inflammatory cytokines IL-1 and TNF, CD30 and CD40, lymphotoxin-alpha and lymphotoxin-beta, by exposure to LPS or thrombin, and by expression of certain viral gene products. As a transcription factor, NF-KB  
5 regulates the expression of genes involved in immune cell activation, control of apoptosis (NF- KB appears to shield cells from apoptosis), B and T-cell development, anti-viral and antimicrobial responses, and multiple stress responses.

In non-stimulated conditions, NF- KB is retained in the cytoplasm with I-KB (Inhibitor KB). However, upon stimulation, I- KB is phosphorylated and degraded,  
10 causing NF- KB to shuttle to the nucleus, thereby activating transcription of target genes. Target genes activated by NF- KB include IL-2, IL-6, GM-CSF, ICAM-1 and class I MHC.

Due to its central role and ability to respond to a range of stimuli, reporter constructs utilizing the NF-KB promoter element are used to screen the supernatants  
15 produced in Example 31. Activators or inhibitors of NF-KB would be useful in treating, preventing, and/or diagnosing diseases. For example, inhibitors of NF-KB could be used to treat those diseases related to the acute or chronic activation of NF-KB, such as rheumatoid arthritis.

To construct a vector containing the NF-KB promoter element, a PCR based  
20 strategy is employed. The upstream primer contains four tandem copies of the NF-KB binding site (GGGGACTTTCCC) (SEQ ID NO:1692), 18 bp of sequence complementary to the 5' end of the SV40 early promoter sequence, and is flanked with an XhoI site:

5':GCGGCCTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGAC  
25 TTTCCATCCTGCCATCTCAATTAG:3' (SEQ ID NO:1693)

The downstream primer is complementary to the 3' end of the SV40 promoter and is flanked with a Hind III site:

5':GCGGCAAGCTTTTTGCAAAGCCTAGGC:3' (SEQ ID NO:1688)

PCR amplification is performed using the SV40 promoter template present in  
30 the pB-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is

digested with XhoI and Hind III and subcloned into BLSK2-. (Stratagene) Sequencing with the T7 and T3 primers confirms the insert contains the following sequence:

5':CTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGACTTTCC  
5 ATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCGCCCCTAACTCCGCCC  
ATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGA  
CTAATTTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTA  
TTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAA  
GCTT:3' (SEQ ID NO:1694)

10 Next, replace the SV40 minimal promoter element present in the pSEAP2-promoter plasmid (Clontech) with this NF-KB/SV40 fragment using XhoI and HindIII. However, this vector does not contain a neomycin resistance gene, and therefore, is not preferred for mammalian expression systems.

In order to generate stable mammalian cell lines, the NF-KB/SV40/SEAP  
15 cassette is removed from the above NF-KB/SEAP vector using restriction enzymes SalI and NotI, and inserted into a vector containing neomycin resistance. Particularly, the NF-KB/SV40/SEAP cassette was inserted into pGFP-1 (Clontech), replacing the GFP gene, after restricting pGFP-1 with SalI and NotI.

Once NF-KB/SV40/SEAP/Neo vector is created, stable Jurkat T-cells are  
20 created and maintained according to the protocol described in Example 33. Similarly, the method for assaying supernatants with these stable Jurkat T-cells is also described in Example 33. As a positive control, exogenous TNF alpha (0.1, 1, 10 ng) is added to wells H9, H10, and H11, with a 5-10 fold activation typically observed.

### 25 *Example 37: Assay for SEAP Activity*

As a reporter molecule for the assays described in Examples 33-36, SEAP activity is assayed using the Tropix Phospho-light Kit (Cat. BP-400) according to the following general procedure. The Tropix Phospho-light Kit supplies the Dilution,  
30 Assay, and Reaction Buffers used below.

Prime a dispenser with the 2.5x Dilution Buffer and dispense 15 ul of 2.5x dilution buffer into Optiplates containing 35 ul of a supernatant. Seal the plates with a plastic sealer and incubate at 65 degree C for 30 min. Separate the Optiplates to avoid uneven heating.

- 5 Cool the samples to room temperature for 15 minutes. Empty the dispenser and prime with the Assay Buffer. Add 50 ml Assay Buffer and incubate at room temperature 5 min. Empty the dispenser and prime with the Reaction Buffer (see the table below).. Add 50 ul Reaction Buffer and incubate at room temperature for 20 minutes. Since the intensity of the chemiluminescent signal is time dependent, and it
- 10 takes about 10 minutes to read 5 plates on luminometer, one should treat 5 plates at each time and start the second set 10 minutes later.

Read the relative light unit in the luminometer. Set H12 as blank, and print the results. An increase in chemiluminescence indicates reporter activity.

15 Reaction Buffer Formulation:

# of plates	Rxn buffer diluent (ml)	CSPD (ml)
10	60	3
11	65	3.25
12	70	3.5
13	75	3.75
14	80	4
15	85	4.25
16	90	4.5
17	95	4.75
18	100	5
19	105	5.25
20	110	5.5
21	115	5.75
22	120	6

521

23	125	6.25
24	130	6.5
25	135	6.75
26	140	7
27	145	7.25
28	150	7.5
29	155	7.75
30	160	8
31	165	8.25
32	170	8.5
33	175	8.75
34	180	9
35	185	9.25
36	190	9.5
37	195	9.75
38	200	10
39	205	10.25
40	210	10.5
41	215	10.75
42	220	11
43	225	11.25
44	230	11.5
45	235	11.75
46	240	12
47	245	12.25
48	250	12.5
49	255	12.75
50	260	13

---

*Example 38: High-Throughput Screening Assay Identifying Changes in Small*

*Molecule Concentration and Membrane Permeability*

Binding of a ligand to a receptor is known to alter intracellular levels of small molecules, such as calcium, potassium, sodium, and pH, as well as alter membrane potential. These alterations can be measured in an assay to identify supernatants which bind to receptors of a particular cell. Although the following protocol describes an assay for calcium, this protocol can easily be modified to detect changes in potassium, sodium, pH, membrane potential, or any other small molecule which is detectable by a fluorescent probe.

The following assay uses Fluorometric Imaging Plate Reader ("FLIPR") to measure changes in fluorescent molecules (Molecular Probes) that bind small molecules. Clearly, any fluorescent molecule detecting a small molecule can be used instead of the calcium fluorescent molecule, fluo-4 (Molecular Probes, Inc.; catalog no. F-14202), used here.

For adherent cells, seed the cells at 10,000 -20,000 cells/well in a Co-star black 96-well plate with clear bottom. The plate is incubated in a CO<sub>2</sub> incubator for 20 hours. The adherent cells are washed two times in Biotek washer with 200 ul of HBSS (Hank's Balanced Salt Solution) leaving 100 ul of buffer after the final wash.

A stock solution of 1 mg/ml fluo-4 is made in 10% pluronic acid DMSO. To load the cells with fluo-4, 50 ul of 12 ug/ml fluo-4 is added to each well. The plate is incubated at 37 degrees C in a CO<sub>2</sub> incubator for 60 min. The plate is washed four times in the Biotek washer with HBSS leaving 100 ul of buffer.

For non-adherent cells, the cells are spun down from culture media. Cells are re-suspended to 2-5x10<sup>6</sup> cells/ml with HBSS in a 50-ml conical tube. 4 ul of 1 mg/ml fluo-4 solution in 10% pluronic acid DMSO is added to each ml of cell suspension. The tube is then placed in a 37 degrees C water bath for 30-60 min. The cells are washed twice with HBSS, resuspended to 1x10<sup>6</sup> cells/ml, and dispensed into a microplate, 100 ul/well. The plate is centrifuged at 1000 rpm for 5 min. The plate is then washed once in Denley Cell Wash with 200 ul, followed by an aspiration step to 100 ul final volume.

For a non-cell based assay, each well contains a fluorescent molecule, such as fluo-4 . The supernatant is added to the well, and a change in fluorescence is detected.

To measure the fluorescence of intracellular calcium, the FLIPR is set for the following parameters: (1) System gain is 300-800 mW; (2) Exposure time is 0.4 second; (3) Camera F/stop is F/2; (4) Excitation is 488 nm; (5) Emission is 530 nm; and (6) Sample addition is 50 ul. Increased emission at 530 nm indicates an extracellular signaling event caused by the a molecule, either polypeptide of the present invention or a molecule induced by polypeptide of the present invention, which has resulted in an increase in the intracellular  $\text{Ca}^{++}$  concentration.

*Example 40: High-Throughput Screening Assay Identifying Tyrosine Kinase Activity*

The Protein Tyrosine Kinases (PTK) represent a diverse group of transmembrane and cytoplasmic kinases. Within the Receptor Protein Tyrosine Kinase (RPTK) group are receptors for a range of mitogenic and metabolic growth factors including the PDGF, FGF, EGF, NGF, HGF and Insulin receptor subfamilies. In addition there are a large family of RPTKs for which the corresponding ligand is unknown. Ligands for RPTKs include mainly secreted small proteins, but also membrane-bound and extracellular matrix proteins.

Activation of RPTK by ligands involves ligand-mediated receptor dimerization, resulting in transphosphorylation of the receptor subunits and activation of the cytoplasmic tyrosine kinases. The cytoplasmic tyrosine kinases include receptor associated tyrosine kinases of the src-family (e.g., src, yes, lck, lyn, fyn) and non-receptor linked and cytosolic protein tyrosine kinases, such as the Jak family, members of which mediate signal transduction triggered by the cytokine superfamily of receptors (e.g., the Interleukins, Interferons, GM-CSF, and Leptin).

Because of the wide range of known factors capable of stimulating tyrosine kinase activity, identifying whether polypeptide of the present invention or a molecule induced by polypeptide of the present invention is capable of activating tyrosine

kinase signal transduction pathways is of interest. Therefore, the following protocol is designed to identify such molecules capable of activating the tyrosine kinase signal transduction pathways.

Seed target cells (e.g., primary keratinocytes) at a density of approximately  
5 25,000 cells per well in a 96 well Loprodyne Silent Screen Plates purchased from  
Nalge Nunc (Naperville, IL). The plates are sterilized with two 30 minute rinses with  
100% ethanol, rinsed with water and dried overnight. Some plates are coated for 2 hr  
with 100 ml of cell culture grade type I collagen (50 mg/ml), gelatin (2%) or  
polylysine (50 mg/ml), all of which can be purchased from Sigma Chemicals (St.  
10 Louis, MO) or 10% Matrigel purchased from Becton Dickinson (Bedford, MA), or  
calf serum, rinsed with PBS and stored at 4 degree C. Cell growth on these plates is  
assayed by seeding 5,000 cells/well in growth medium and indirect quantitation of  
cell number through use of alamarBlue as described by the manufacturer Alamar  
Biosciences, Inc. (Sacramento, CA) after 48 hr. Falcon plate covers #3071 from  
15 Becton Dickinson (Bedford, MA) are used to cover the Loprodyne Silent Screen  
Plates. Falcon Microtest III cell culture plates can also be used in some proliferation  
experiments.

To prepare extracts, A431 cells are seeded onto the nylon membranes of  
Loprodyne plates (20,000/200ml/well) and cultured overnight in complete medium.  
20 Cells are quiesced by incubation in serum-free basal medium for 24 hr. After 5-20  
minutes treatment with EGF (60ng/ml) or 50 ul of the supernatant produced in  
Example 31, the medium was removed and 100 ml of extraction buffer ((20 mM  
HEPES pH 7.5, 0.15 M NaCl, 1% Triton X-100, 0.1% SDS, 2 mM Na<sub>3</sub>VO<sub>4</sub>, 2 mM  
Na<sub>4</sub>P<sub>2</sub>O<sub>7</sub> and a cocktail of protease inhibitors (# 1836170) obtained from  
25 Boehringer Mannheim (Indianapolis, IN) is added to each well and the plate is  
shaken on a rotating shaker for 5 minutes at 4°C. The plate is then placed in a  
vacuum transfer manifold and the extract filtered through the 0.45 mm membrane  
bottoms of each well using house vacuum. Extracts are collected in a 96-well  
catch/assay plate in the bottom of the vacuum manifold and immediately placed on  
30 ice. To obtain extracts clarified by centrifugation, the content of each well, after

detergent solubilization for 5 minutes, is removed and centrifuged for 15 minutes at 4 degree C at 16,000 x g.

Test the filtered extracts for levels of tyrosine kinase activity. Although many methods of detecting tyrosine kinase activity are known, one method is described  
5 here.

Generally, the tyrosine kinase activity of a supernatant is evaluated by determining its ability to phosphorylate a tyrosine residue on a specific substrate (a biotinylated peptide). Biotinylated peptides that can be used for this purpose include PSK1 (corresponding to amino acids 6-20 of the cell division kinase cdc2-p34) and  
10 PSK2 (corresponding to amino acids 1-17 of gastrin). Both peptides are substrates for a range of tyrosine kinases and are available from Boehringer Mannheim.

The tyrosine kinase reaction is set up by adding the following components in order. First, add 10ul of 5uM Biotinylated Peptide, then 10ul ATP/Mg<sub>2</sub><sup>+</sup> (5mM ATP/50mM MgCl<sub>2</sub>), then 10ul of 5x Assay Buffer (40mM imidazole hydrochloride,  
15 pH7.3, 40 mM beta-glycerophosphate, 1mM EGTA, 100mM MgCl<sub>2</sub>, 5 mM MnCl<sub>2</sub>, 0.5 mg/ml BSA), then 5ul of Sodium Vanadate(1mM), and then 5ul of water. Mix the components gently and preincubate the reaction mix at 30 degree C for 2 min. Initial the reaction by adding 10ul of the control enzyme or the filtered supernatant.

The tyrosine kinase assay reaction is then terminated by adding 10 ul of  
20 120mM EDTA and place the reactions on ice.

Tyrosine kinase activity is determined by transferring 50 ul aliquot of reaction mixture to a microtiter plate (MTP) module and incubating at 37 degree C for 20 min. This allows the streptavidin coated 96 well plate to associate with the biotinylated peptide. Wash the MTP module with 300ul/well of PBS four times. Next add 75 ul  
25 of anti-phosphotyrosine antibody conjugated to horse radish peroxidase(anti-P-Tyr-POD(0.5u/ml)) to each well and incubate at 37 degree C for one hour. Wash the well as above.

Next add 100ul of peroxidase substrate solution (Boehringer Mannheim) and incubate at room temperature for at least 5 mins (up to 30 min). Measure the  
30 absorbance of the sample at 405 nm by using ELISA reader. The level of bound



peroxidase activity is quantitated using an ELISA reader and reflects the level of tyrosine kinase activity.

*Example 41: High-Throughput Screening Assay Identifying Phosphorylation Activity*

5

As a potential alternative and/or compliment to the assay of protein tyrosine kinase activity described in Example 40, an assay which detects activation (phosphorylation) of major intracellular signal transduction intermediates can also be used. For example, as described below one particular assay can detect tyrosine phosphorylation of the Erk-1 and Erk-2 kinases. However, phosphorylation of other  
10 molecules, such as Raf, JNK, p38 MAP, Map kinase kinase (MEK), MEK kinase, Src, Muscle specific kinase (MuSK), IRAK, Tec, and Janus, as well as any other phosphoserine, phosphotyrosine, or phosphothreonine molecule, can be detected by substituting these molecules for Erk-1 or Erk-2 in the following assay.

15 Specifically, assay plates are made by coating the wells of a 96-well ELISA plate with 0.1ml of protein G (1ug/ml) for 2 hr at room temp, (RT). The plates are then rinsed with PBS and blocked with 3% BSA/PBS for 1 hr at RT. The protein G plates are then treated with 2 commercial monoclonal antibodies (100ng/well) against Erk-1 and Erk-2 (1 hr at RT) (Santa Cruz Biotechnology). (To detect other  
20 molecules, this step can easily be modified by substituting a monoclonal antibody detecting any of the above described molecules.) After 3-5 rinses with PBS, the plates are stored at 4 degree C until use.

A431 cells are seeded at 20,000/well in a 96-well Loprodyne filterplate and cultured overnight in growth medium. The cells are then starved for 48 hr in basal  
25 medium (DMEM) and then treated with EGF (6ng/well) or 50 ul of the supernatants obtained in Example 31 for 5-20 minutes. The cells are then solubilized and extracts filtered directly into the assay plate.

After incubation with the extract for 1 hr at RT, the wells are again rinsed. As a positive control, a commercial preparation of MAP kinase (10ng/well) is used in  
30 place of A431 extract. Plates are then treated with a commercial polyclonal (rabbit)

antibody (1ug/ml) which specifically recognizes the phosphorylated epitope of the Erk-1 and Erk-2 kinases (1 hr at RT). This antibody is biotinylated by standard procedures. The bound polyclonal antibody is then quantitated by successive incubations with Europium-streptavidin and Europium fluorescence enhancing reagent in the Wallac DELFIA instrument (time-resolved fluorescence). An increased fluorescent signal over background indicates a phosphorylation by polypeptide of the present invention or a molecule induced by polypeptide of the present invention.

*Example 42: Assay for the Stimulation of Bone Marrow CD34+ Cell Proliferation*

10

This assay is based on the ability of human CD34+ to proliferate in the presence of hematopoietic growth factors and evaluates the ability of isolated polypeptides expressed in mammalian cells to stimulate proliferation of CD34+ cells.

It has been previously shown that most mature precursors will respond to only a single signal. More immature precursors require at least two signals to respond. Therefore, to test the effect of polypeptides on hematopoietic activity of a wide range of progenitor cells, the assay contains a given polypeptide in the presence or absence of other hematopoietic growth factors. Isolated cells are cultured for 5 days in the presence of Stem Cell Factor (SCF) in combination with tested sample. SCF alone has a very limited effect on the proliferation of bone marrow (BM) cells, acting in such conditions only as a "survival" factor. However, combined with any factor exhibiting stimulatory effect on these cells (e.g., IL-3), SCF will cause a synergistic effect. Therefore, if the tested polypeptide has a stimulatory effect on a hematopoietic progenitors, such activity can be easily detected. Since normal BM cells have a low level of cycling cells, it is likely that any inhibitory effect of a given polypeptide, or agonists or antagonists thereof, might not be detected. Accordingly, assays for an inhibitory effect on progenitors is preferably tested in cells that are first subjected to *in vitro* stimulation with SCF+IL+3, and then contacted with the compound that is being evaluated for inhibition of such induced proliferation.

30 Briefly, CD34+ cells are isolated using methods known in the art. The cells

are thawed and resuspended in medium (QBSF 60 serum-free medium with 1% L-glutamine (500ml) Quality Biological, Inc., Gaithersburg, MD Cat# 160-204-101). After several gentle centrifugation steps at 200 x g, cells are allowed to rest for one hour. The cell count is adjusted to  $2.5 \times 10^5$  cells/ml. During this time, 100  $\mu$ l of  
5 sterile water is added to the peripheral wells of a 96-well plate. The cytokines that can be tested with a given polypeptide in this assay is rhSCF (R&D Systems, Minneapolis, MN, Cat# 255-SC) at 50 ng/ml alone and in combination with rhSCF and rhIL-3 (R&D Systems, Minneapolis, MN, Cat# 203-ML) at 30 ng/ml. After one hour, 10  $\mu$ l of prepared cytokines, 50  $\mu$ l of the supernatants prepared in Example 31  
10 (supernatants at 1:2 dilution = 50  $\mu$ l) and 20  $\mu$ l of diluted cells are added to the media which is already present in the wells to allow for a final total volume of 100  $\mu$ l. The plates are then placed in a 37°C/5% CO<sub>2</sub> incubator for five days.

Eighteen hours before the assay is harvested, 0.5  $\mu$ Ci/well of [3H] Thymidine is added in a 10  $\mu$ l volume to each well to determine the proliferation rate. The  
15 experiment is terminated by harvesting the cells from each 96-well plate to a filtermat using the Tomtec Harvester 96. After harvesting, the filtermats are dried, trimmed and placed into OmniFilter assemblies consisting of one OmniFilter plate and one OmniFilter Tray. 60  $\mu$ l Microscint is added to each well and the plate sealed with TopSeal-A press-on sealing film. A bar code 15 sticker is affixed to the first plate for  
20 counting. The sealed plates is then loaded and the level of radioactivity determined via the Packard Top Count and the printed data collected for analysis. The level of radioactivity reflects the amount of cell proliferation.

The studies described in this example test the activity of a given polypeptide to stimulate bone marrow CD34+ cell proliferation. One skilled in the art could  
25 easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof. As a nonlimiting example, potential antagonists tested in this assay would be expected to inhibit cell proliferation in the presence of cytokines and/or to increase the inhibition of cell proliferation in the presence of cytokines and a given polypeptide.  
30 In contrast, potential agonists tested in this assay would be expected to enhance cell

proliferation and/or to decrease the inhibition of cell proliferation in the presence of cytokines and a given polypeptide.

The ability of a gene to stimulate the proliferation of bone marrow CD34+ cells indicates that polynucleotides and polypeptides corresponding to the gene are  
5 useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the “Immune Activity” and “Infectious Disease” sections above, and elsewhere herein.

*Example 43: Assay for Extracellular Matrix Enhanced Cell Response (EMECR)*

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The objective of the Extracellular Matrix Enhanced Cell Response (EMECR) assay is to identify gene products (e.g., isolated polypeptides) that act on the hematopoietic stem cells in the context of the extracellular matrix (ECM) induced signal.

15

Cells respond to the regulatory factors in the context of signal(s) received from the surrounding microenvironment. For example, fibroblasts, and endothelial and epithelial stem cells fail to replicate in the absence of signals from the ECM. Hematopoietic stem cells can undergo self-renewal in the bone marrow, but not in *in vitro* suspension culture. The ability of stem cells to undergo self-renewal *in vitro* is  
20 dependent upon their interaction with the stromal cells and the ECM protein fibronectin (fn). Adhesion of cells to fn is mediated by the  $\alpha_5\beta_1$  and  $\alpha_4\beta_1$  integrin receptors, which are expressed by human and mouse hematopoietic stem cells. The factor(s) which integrate with the ECM environment and responsible for stimulating stem cell self-renewal has not yet been identified. Discovery of such factors should  
25 be of great interest in gene therapy and bone marrow transplant applications

Briefly, polystyrene, non tissue culture treated, 96-well plates are coated with fn fragment at a coating concentration of  $0.2 \mu\text{g}/\text{cm}^2$ . Mouse bone marrow cells are plated (1,000 cells/well ) in 0.2 ml of serum-free medium. Cells cultured in the presence of IL-3 ( 5 ng/ml ) + SCF ( 50 ng/ml ) would serve as the positive control,

conditions under which little self-renewal but pronounced differentiation of the stem cells is to be expected. Gene products of the invention (e.g., including, but not limited to, polynucleotides and polypeptides of the present invention, and supernatants produced in Example 31), are tested with appropriate negative controls in the presence and absence of SCF(5.0 ng/ml), where test factor supernates represent 10% of the total assay volume. The plated cells are then allowed to grow by incubating in a low oxygen environment ( 5% CO<sub>2</sub>, 7% O<sub>2</sub>, and 88% N<sub>2</sub> ) tissue culture incubator for 7 days. The number of proliferating cells within the wells is then quantitated by measuring thymidine incorporation into cellular DNA. Verification of the positive hits in the assay will require phenotypic characterization of the cells, which can be accomplished by scaling up of the culture system and using appropriate antibody reagents against cell surface antigens and FACSscan.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

If a particular polypeptide of the present invention is found to be a stimulator of hematopoietic progenitors, polynucleotides and polypeptides corresponding to the gene encoding said polypeptide may be useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein. The gene product may also be useful in the expansion of stem cells and committed progenitors of various blood lineages, and in the differentiation and/or proliferation of various cell types.

Additionally, the polynucleotides and/or polypeptides of the gene of interest and/or agonists and/or antagonists thereof, may also be employed to inhibit the proliferation and differentiation of hematopoietic cells and therefore may be employed to protect bone marrow stem cells from chemotherapeutic agents during chemotherapy. This antiproliferative effect may allow administration of higher doses of chemotherapeutic agents and, therefore, more effective chemotherapeutic treatment.

Moreover, polynucleotides and polypeptides corresponding to the gene of interest may also be useful for the treatment and diagnosis of hematopoietic related disorders such as, for example, anemia, pancytopenia, leukopenia, thrombocytopenia or leukemia since stromal cells are important in the production of cells of hematopoietic lineages. The uses include bone marrow cell ex-vivo culture, bone marrow transplantation, bone marrow reconstitution, radiotherapy or chemotherapy of neoplasia.

*Example 44: Human Dermal Fibroblast and Aortic Smooth Muscle Cell Proliferation*

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The polypeptide of interest is added to cultures of normal human dermal fibroblasts (NHDF) and human aortic smooth muscle cells (AoSMC) and two co-assays are performed with each sample. The first assay examines the effect of the polypeptide of interest on the proliferation of normal human dermal fibroblasts (NHDF) or aortic smooth muscle cells (AoSMC). Aberrant growth of fibroblasts or smooth muscle cells is a part of several pathological processes, including fibrosis, and restenosis. The second assay examines IL6 production by both NHDF and SMC. IL6 production is an indication of functional activation. Activated cells will have increased production of a number of cytokines and other factors, which can result in a proinflammatory or immunomodulatory outcome. Assays are run with and without co-TNF $\alpha$  stimulation, in order to check for costimulatory or inhibitory activity.

20

Briefly, on day 1, 96-well black plates are set up with 1000 cells/well (NHDF) or 2000 cells/well (AoSMC) in 100  $\mu$ l culture media. NHDF culture media contains: Clonetics FB basal media, 1mg/ml hFGF, 5mg/ml insulin, 50mg/ml gentamycin, 25 2%FBS, while AoSMC culture media contains Clonetics SM basal media, 0.5  $\mu$ g/ml hEGF, 5mg/ml insulin, 1 $\mu$ g/ml hFGF, 50mg/ml gentamycin, 50  $\mu$ g/ml Amphotericin B, 5%FBS. After incubation at 37°C for at least 4-5 hours, culture media is aspirated and replaced with growth arrest media. Growth arrest media for NHDF contains fibroblast basal media, 50mg/ml gentamycin, 2% FBS, while growth arrest media for 30 AoSMC contains SM basal media, 50mg/ml gentamycin, 50 $\mu$ g/ml Amphotericin B,

0.4% FBS. Incubate at 37°C until day 2.

On day 2, serial dilutions and templates of the polypeptide of interest are designed such that they always include media controls and known-protein controls. For both stimulation and inhibition experiments, proteins are diluted in growth arrest  
5 media. For inhibition experiments, TNF $\alpha$  is added to a final concentration of 2ng/ml (NHDF) or 5ng/ml (AoSMC). Add 1/3 vol media containing controls or polypeptides of the present invention and incubate at 37°C/5% CO<sub>2</sub> until day 5.

Transfer 60 $\mu$ l from each well to another labeled 96-well plate, cover with a plate-sealer, and store at 4°C until Day 6 (for IL6 ELISA). To the remaining 100  $\mu$ l in  
10 the cell culture plate, aseptically add Alamar Blue in an amount equal to 10% of the culture volume (10 $\mu$ l). Return plates to incubator for 3 to 4 hours. Then measure fluorescence with excitation at 530nm and emission at 590nm using the CytoFluor. This yields the growth stimulation/inhibition data.

On day 5, the IL6 ELISA is performed by coating a 96 well plate with 50-100  
15  $\mu$ l/well of Anti-Human IL6 Monoclonal antibody diluted in PBS, pH 7.4, incubate ON at room temperature.

On day 6, empty the plates into the sink and blot on paper towels. Prepare Assay Buffer containing PBS with 4% BSA. Block the plates with 200  $\mu$ l/well of Pierce Super Block blocking buffer in PBS for 1-2 hr and then wash plates with wash  
20 buffer (PBS, 0.05% Tween-20). Blot plates on paper towels. Then add 50  $\mu$ l/well of diluted Anti-Human IL-6 Monoclonal, Biotin-labeled antibody at 0.50 mg/ml. Make dilutions of IL-6 stock in media (30, 10, 3, 1, 0.3, 0 ng/ml). Add duplicate samples to top row of plate. Cover the plates and incubate for 2 hours at RT on shaker. Plates are washed with wash buffer and blotted on paper towels. Dilute EU-labeled Streptavidin  
25 1:1000 in Assay buffer, and add 100  $\mu$ l/well. Cover the plate and incubate 1 h at RT. Plates are again washed with wash buffer and blotted on paper towels. Add 100  $\mu$ l/well of Enhancement Solution and shake for 5 minutes. Read the plate on the Wallac DELFIA Fluorometer. Readings from triplicate samples in each assay are tabulated and averaged.

30 A positive result in this assay suggests AoSMC cell proliferation and that the

polypeptide of the present invention may be involved in dermal fibroblast proliferation and/or smooth muscle cell proliferation. A positive result also suggests many potential uses of polypeptides, polynucleotides, agonists and/or antagonists of the polynucleotide/polypeptide of the present invention which gives a positive result.

5 For example, inflammation and immune responses, wound healing, and angiogenesis, as detailed throughout this specification. Particularly, polypeptides of the present invention and polynucleotides of the present invention may be used in wound healing and dermal regeneration, as well as the promotion of vasculogenesis, both of the blood vessels and lymphatics. The growth of vessels can be used in the treatment of, 10 for example, cardiovascular diseases. Additionally, antagonists of polypeptides and polynucleotides of the invention may be useful in treating diseases, disorders, and/or conditions which involve angiogenesis by acting as an anti-vascular (e.g., anti-angiogenesis). These diseases, disorders, and/or conditions are known in the art and/or are described herein, such as, for example, malignancies, solid tumors, benign 15 tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas; arteriosclerotic plaques; ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, uveitis and Pterygia (abnormal blood vessel growth) of the eye; 20 rheumatoid arthritis; psoriasis; delayed wound healing; endometriosis; vasculogenesis; granulations; hypertrophic scars (keloids); nonunion fractures; scleroderma; trachoma; vascular adhesions; myocardial angiogenesis; coronary collaterals; cerebral collaterals; arteriovenous malformations; ischemic limb angiogenesis; Osler-Webber Syndrome; plaque neovascularization; telangiectasia; 25 hemophilic joints; angiofibroma; fibromuscular dysplasia; wound granulation; Crohn's disease; and atherosclerosis. Moreover, antagonists of polypeptides and polynucleotides of the invention may be useful in treating anti-hyperproliferative diseases and/or anti-inflammatory known in the art and/or described herein.

One skilled in the art could easily modify the exemplified studies to test the 30 activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or



antagonists and fragments and variants thereof.

*Example 45: Cellular Adhesion Molecule (CAM) Expression on Endothelial Cells*

5

The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

Briefly, endothelial cells (e.g., Human Umbilical Vein Endothelial cells (HUVECs)) are grown in a standard 96 well plate to confluence, growth medium is removed from the cells and replaced with 100  $\mu$ l of 199 Medium (10% fetal bovine serum (FBS)). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10  $\mu$ l volumes). Plates are then incubated at 37°C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100  $\mu$ l of 0.1% paraformaldehyde-PBS(with Ca<sup>++</sup> and Mg<sup>++</sup>) is added to each well. Plates are held at 4°C for 30 min. Fixative is removed from the wells and wells are washed 1X with PBS(+Ca,Mg) + 0.5% BSA and drained. 10  $\mu$ l of diluted primary antibody is added to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10  $\mu$ g/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed three times with PBS(+Ca,Mg) + 0.5% BSA. 20  $\mu$ l of diluted ExtrAvidin-Alkaline

Phosphatase (1:5,000 dilution, referred to herein as the working dilution) are added to each well and incubated at 37°C for 30 min. Wells are washed three times with PBS(+Ca,Mg)+0.5% BSA. Dissolve 1 tablet of p-Nitrophenol Phosphate pNPP per 5 ml of glycine buffer (pH 10.4). 100 µl of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphatase in glycine buffer: 1:5,000 ( $10^0$ ) >  $10^{-0.5}$  >  $10^{-1}$  >  $10^{-1.5}$ . 5 µl of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 µl of pNPP reagent is then added to each of the standard wells. The plate is incubated at 37°C for 4h. A volume of 50 µl of 3M NaOH is added to all wells. The plate is read on a plate reader at 405 nm using the background subtraction option on blank wells filled with glycine buffer only. Additionally, the template is set up to indicate the concentration of AP-conjugate in each standard well [ 5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

*Example 46: Alamar Blue Endothelial Cells Proliferation Assay*

This assay may be used to quantitatively determine protein mediated inhibition of bFGF-induced proliferation of Bovine Lymphatic Endothelial Cells (LECs), Bovine Aortic Endothelial Cells (BAECs) or Human Microvascular Uterine Myometrial Cells (UTMECs). This assay incorporates a fluorometric growth indicator based on detection of metabolic activity. A standard Alamar Blue Proliferation Assay is prepared in EGM-2MV with 10 ng /ml of bFGF added as a source of endothelial cell stimulation. This assay may be used with a variety of endothelial cells with slight changes in growth medium and cell concentration. Dilutions of the protein batches to be tested are diluted as appropriate. Serum-free medium (GIBCO SFM) without bFGF is used as a non-stimulated control and Angiostatin or TSP-1 are included as a known inhibitory controls.

Briefly, LEC, BAECs or UTMECs are seeded in growth media at a density of 5000 to 2000 cells/well in a 96 well plate and placed at 37-C overnight. After the

overnight incubation of the cells, the growth media is removed and replaced with GIBCO EC-SFM. The cells are treated with the appropriate dilutions of the protein of interest or control protein sample(s) (prepared in SFM ) in triplicate wells with additional bFGF to a concentration of 10 ng/ ml. Once the cells have been treated with the samples, the plate(s) is/are placed back in the 37° C incubator for three days. After three days 10 ml of stock alamar blue (Biosource Cat# DAL1100) is added to each well and the plate(s) is/are placed back in the 37°C incubator for four hours. The plate(s) are then read at 530nm excitation and 590nm emission using the CytoFluor fluorescence reader. Direct output is recorded in relative fluorescence units.

Alamar blue is an oxidation-reduction indicator that both fluoresces and changes color in response to chemical reduction of growth medium resulting from cell growth. As cells grow in culture, innate metabolic activity results in a chemical reduction of the immediate surrounding environment. Reduction related to growth causes the indicator to change from oxidized (non-fluorescent blue) form to reduced (fluorescent red) form. i.e. stimulated proliferation will produce a stronger signal and inhibited proliferation will produce a weaker signal and the total signal is proportional to the total number of cells as well as their metabolic activity. The background level of activity is observed with the starvation medium alone. This is compared to the output observed from the positive control samples (bFGF in growth medium) and protein dilutions.

*Example 47: Detection of Inhibition of a Mixed Lymphocyte Reaction*

This assay can be used to detect and evaluate inhibition of a Mixed Lymphocyte Reaction (MLR) by gene products (e.g., isolated polypeptides). Inhibition of a MLR may be due to a direct effect on cell proliferation and viability, modulation of costimulatory molecules on interacting cells, modulation of adhesiveness between lymphocytes and accessory cells, or modulation of cytokine production by accessory cells. Multiple cells may be targeted by these polypeptides

since the peripheral blood mononuclear fraction used in this assay includes T, B and natural killer lymphocytes, as well as monocytes and dendritic cells.

Polypeptides of interest found to inhibit the MLR may find application in diseases associated with lymphocyte and monocyte activation or proliferation. These include, but are not limited to, diseases such as asthma, arthritis, diabetes, inflammatory skin conditions, psoriasis, eczema, systemic lupus erythematosus, multiple sclerosis, glomerulonephritis, inflammatory bowel disease, crohn's disease, ulcerative colitis, arteriosclerosis, cirrhosis, graft vs. host disease, host vs. graft disease, hepatitis, leukemia and lymphoma.

Briefly, PBMCs from human donors are purified by density gradient centrifugation using Lymphocyte Separation Medium (LSM<sup>®</sup>, density 1.0770 g/ml, Organon Teknika Corporation, West Chester, PA). PBMCs from two donors are adjusted to  $2 \times 10^6$  cells/ml in RPMI-1640 (Life Technologies, Grand Island, NY) supplemented with 10% FCS and 2 mM glutamine. PBMCs from a third donor is adjusted to  $2 \times 10^5$  cells/ml. Fifty microliters of PBMCs from each donor is added to wells of a 96-well round bottom microtiter plate. Dilutions of test materials (50  $\mu$ l) is added in triplicate to microtiter wells. Test samples (of the protein of interest) are added for final dilution of 1:4; rhIL-2 (R&D Systems, Minneapolis, MN, catalog number 202-IL) is added to a final concentration of 1  $\mu$ g/ml; anti-CD4 mAb (R&D Systems, clone 34930.11, catalog number MAB379) is added to a final concentration of 10  $\mu$ g/ml. Cells are cultured for 7-8 days at 37°C in 5% CO<sub>2</sub>, and 1  $\mu$ C of [<sup>3</sup>H] thymidine is added to wells for the last 16 hrs of culture. Cells are harvested and thymidine incorporation determined using a Packard TopCount. Data is expressed as the mean and standard deviation of triplicate determinations.

Samples of the protein of interest are screened in separate experiments and compared to the negative control treatment, anti-CD4 mAb, which inhibits proliferation of lymphocytes and the positive control treatment, IL-2 (either as recombinant material or supernatant), which enhances proliferation of lymphocytes.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or

antagonists and fragments and variants thereof.

It will be clear that the invention may be practiced otherwise than as particularly described in the foregoing description and examples. Numerous modifications and variations of the present invention are possible in light of the above teachings and, therefore, are within the scope of the appended claims.

The entire disclosure of each document cited (including patents, patent applications, journal articles, abstracts, laboratory manuals, books, or other disclosures) in the Background of the Invention, Detailed Description, and Examples is hereby incorporated herein by reference. Further, the hard copy of the sequence listing submitted herewith and the corresponding computer readable form are both incorporated herein by reference in their entireties. Moreover, the hard copy of and the corresponding computer readable form of the Sequence Listing of Serial No. 60/124,270 are also incorporated herein by reference in their entireties.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209059
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
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**ATCC Deposit No. 209059****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

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The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 209059

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.



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Applicant's or agent's file reference number	PA106PCT	International application number	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209060
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
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**ATCC Deposit No. 209060****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**

**ATCC Deposit No. 209060**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209061
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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**ATCC Deposit No. 209061****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**  
**ATCC Deposit No. 209061**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209062
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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**ATCC Deposit No. 209062****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.



Page 2

ATCC Deposit No. 209062

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application #	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

<b>A.</b> The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
<b>B. IDENTIFICATION OF DEPOSIT</b> Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>20 May 1997</u>	Accession Number <u>209063</u>
<b>C. ADDITIONAL INDICATIONS</b> (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
<b>D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE</b> (if the indications are not for all designated States)	
<u>Europe</u> In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
<b>E. SEPARATE FURNISHING OF INDICATIONS</b> (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<input checked="" type="checkbox"/> For receiving Office use only This sheet was received with the international application	<input type="checkbox"/> For International Bureau use only This sheet was received by the International Bureau on:
Authorized officer <u>PCT/Internat'l Appl Processing Div.</u> <u>(703) 305-3639</u>	Authorized officer

**ATCC Deposit No. 209063****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2****ATCC Deposit No. 209063****DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

554

Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209064
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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**ATCC Deposit No. 209064****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**

**ATCC Deposit No. 209064**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA106PCT	557 International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209065
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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**ATCC Deposit No. 209065****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**

**ATCC Deposit No. 209065**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

560

Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209066
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<input checked="" type="checkbox"/> For receiving Office use only This sheet was received with the international application Authorized officer PCT/International Application Processing Div. (703) 305-3639	<input type="checkbox"/> For International Bureau use only This sheet was received by the International Bureau on: Authorized officer
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**ATCC Deposit No. 209066****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

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ATCC Deposit No. 209066

## DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209067
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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**ATCC Deposit No. 209067****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**

**ATCC Deposit No. 209067**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.



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Applicant's or agent's file reference number	PA106PCT	International application?	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

<b>A.</b> The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
<b>B. IDENTIFICATION OF DEPOSIT</b> Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>20 May 1997</u>	Accession Number <u>209068</u>
<b>C. ADDITIONAL INDICATIONS</b> (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
<b>D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE</b> (if the indications are not for all designated States)	
<u>Europe</u> In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
<b>E. SEPARATE FURNISHING OF INDICATIONS</b> (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")     	

<b>For receiving Office use only</b> <input checked="" type="checkbox"/> This sheet was received with the international application  Authorized officer: <u>PCT/International Appl Processing Div.</u> <u>(703) 306-3339</u>	<b>For International Bureau use only</b> <input type="checkbox"/> This sheet was received by the International Bureau on:  Authorized officer
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**ATCC Deposit No. 209068****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**

**ATCC Deposit No. 209068**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

569

Applicant's or agent's file reference number	PA106PCT	International application?	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

<b>A.</b> The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
<b>B. IDENTIFICATION OF DEPOSIT</b> Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>20 May 1997</u>	Accession Number <u>209069</u>
<b>C. ADDITIONAL INDICATIONS</b> (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
<b>D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE</b> (if the indications are not for all designated States)	
<u>Europe</u> In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
<b>E. SEPARATE FURNISHING OF INDICATIONS</b> (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")     	

<b>For receiving Office use only</b>	<b>For International Bureau use only</b>
<input checked="" type="checkbox"/> This sheet was received with the international application	<input type="checkbox"/> This sheet was received by the International Bureau on:
<u>Jerry McDowell</u> Authorized officer <b>PCT/International Appl Processing Div.</b> <b>(703) 305-3639</b>	Authorized officer

**ATCC Deposit No. 209069****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 209069

## DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 12 January 1998	Accession Number 209579
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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Authorized officer Jon M. Dewell PCT/Internat'l Appl Processing Div. (703) 305-3639

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Authorized officer

**ATCC Deposit No. 209579****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

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**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.



**Page 2**

**ATCC Deposit No. 209579**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 12 January 1998	Accession Number 209578
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Authorized officer Jeryl A. Dorell PCT/Internal Appl Processing Div. (703) 305-3080</p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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**ATCC Deposit No. 209578****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**

**ATCC Deposit No. 209578**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 16 July 1998	Accession Number 203067
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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<input checked="" type="checkbox"/> This sheet was received with the international application
Authorized officer Daryl McDowell PCT/International Appl Processing Div. (703) 305-3639

For International Bureau use only
<input type="checkbox"/> This sheet was received by the International Bureau on:
Authorized officer

**ATCC Deposit No. 203067****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**

**ATCC Deposit No. 203067**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

<b>A.</b> The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
<b>B. IDENTIFICATION OF DEPOSIT</b> Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>16 July 1998</u>	Accession Number <u>203068</u>
<b>C. ADDITIONAL INDICATIONS</b> (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
<b>D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE</b> (if the indications are not for all designated States)	
<u>Europe</u> In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
<b>E. SEPARATE FURNISHING OF INDICATIONS</b> (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")     	

<b>For receiving Office use only</b> <input checked="" type="checkbox"/> This sheet was received with the international application  <u>Jared McDowell</u> Authorized officer <u>PCT/Internat'l Appl Processing Div.</u> <u>(703) 305-3339</u>	<b>For International Bureau use only</b> <input type="checkbox"/> This sheet was received by the International Bureau on:  Authorized officer
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**ATCC Deposit No. 203068****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**  
**ATCC Deposit No. 203068**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT <span style="float: right;">Further deposits are identified on an additional sheet <input type="checkbox"/></span>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 1 February 1999	Accession Number 203609
C. ADDITIONAL INDICATIONS (leave blank if not applicable) <span style="float: right;">This information is continued on an additional sheet <input type="checkbox"/></span>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p><b>Jeryl McDowell</b> Authorized officer PCT/International Appl Processing Div. (703) 305-3339</p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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**ATCC Deposit No. 203609****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**

**ATCC Deposit No. 203609**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 1 February 1999	Accession Number 203610
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Authorized officer Jeryl McCowell PCT/International Appl Processing Div. (703) 305-3639</p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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**ATCC Deposit No. 203610****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**Page 2**

**ATCC Deposit No. 203610**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.



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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 17 November 1998	Accession Number 203485
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<b>For receiving Office use only</b> <input checked="" type="checkbox"/> This sheet was received with the international application  Authorized officer: Jeryl McDevitt PCT/International Appl Processing Div. (703) 305-3839	<b>For International Bureau use only</b> <input type="checkbox"/> This sheet was received by the International Bureau on:  Authorized officer
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**ATCC Deposit No. 203485****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement; or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

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**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

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**Page 2****ATCC Deposit No. 203485****DENMARK**

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**SWEDEN**

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**NETHERLANDS**

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 18 June 1999	Accession Number PTA-252
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Authorized officer Jarryl McDowell PCT/International Appl Processing Div. (703) 305-3639</p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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**ATCC Deposit No. PTA-252****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

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**FINLAND**

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**UNITED KINGDOM**

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**Page 2**

**ATCC Deposit No. PTA-252**

## **DENMARK**

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## **SWEDEN**

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## **NETHERLANDS**

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT <span style="float: right;">Further deposits are identified on an additional sheet <input type="checkbox"/></span>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit  18 June 1999	Accession Number  PTA-253
C. ADDITIONAL INDICATIONS (leave blank if not applicable) <span style="float: right;">This information is continued on an additional sheet <input type="checkbox"/></span>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Jerry McDowell Authorized officer PCT/International Appl Processing Div. (703) 305-3639</p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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**ATCC Deposit No. PTA-253****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

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**FINLAND**

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**UNITED KINGDOM**

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**Page 2**

**ATCC Deposit No. PTA-253**

## **DENMARK**

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## **SWEDEN**

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT <span style="float: right;">Further deposits are identified on an additional sheet <input type="checkbox"/></span>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>22 December 1999</u>	Accession Number <u>PTA-1081</u>
C. ADDITIONAL INDICATIONS (leave blank if not applicable) <span style="float: right;">This information is continued on an additional sheet <input type="checkbox"/></span>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Authorized officer <u>Jerry MacDonell</u> <u>PCT/International Appl Processing Div.</u> <u>(703) 305-3639</u></p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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**ATCC Deposit No. PTA-1081****CANADA**

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**FINLAND**

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**UNITED KINGDOM**

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**Page 2****ATCC Deposit No. PTA-1081****DENMARK**

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*What Is Claimed Is:*

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:
  - (a) a polynucleotide fragment of SEQ ID NO:X or a polynucleotide fragment of the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
  - (b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:Y or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
  - (c) a polynucleotide encoding a polypeptide fragment of a polypeptide encoded by SEQ ID NO:X or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
  - (d) a polynucleotide encoding a polypeptide domain of SEQ ID NO:Y or a polypeptide domain encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
  - (e) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:Y or a polypeptide epitope encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
  - (f) a polynucleotide encoding a polypeptide of SEQ ID NO:Y or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X, having biological activity;
  - (g) a polynucleotide which is a variant of SEQ ID NO:X;
  - (h) a polynucleotide which is an allelic variant of SEQ ID NO:X;
  - (i) a polynucleotide which encodes a species homologue of the SEQ ID NO:Y;
  - (j) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(i), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide

sequence of only A residues or of only T residues.

2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a protein.

5

3. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding the sequence identified as SEQ ID NO:Y or the polypeptide encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

10

4. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises the entire nucleotide sequence of SEQ ID NO:X or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

15

5. The isolated nucleic acid molecule of claim 2, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

20

6. The isolated nucleic acid molecule of claim 3, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

25

7. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.

8. A method of making a recombinant host cell comprising the isolated nucleic acid molecule of claim 1.

30

9. A recombinant host cell produced by the method of claim 8.

10. The recombinant host cell of claim 9 comprising vector sequences.
11. An isolated polypeptide comprising an amino acid sequence at least  
5 95% identical to a sequence selected from the group consisting of:
- (a) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
  - (b) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone, having biological activity;
  - 10 (c) a polypeptide domain of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
  - (d) a polypeptide epitope of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
  - (e) a full length protein of SEQ ID NO:Y or of the sequence encoded by the  
15 cDNA included in the related cDNA clone;
  - (f) a variant of SEQ ID NO:Y;
  - (g) an allelic variant of SEQ ID NO:Y; or
  - (h) a species homologue of the SEQ ID NO:Y.
- 20 12. The isolated polypeptide of claim 11, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.
13. An isolated antibody that binds specifically to the isolated polypeptide  
25 of claim 11.
14. A recombinant host cell that expresses the isolated polypeptide of claim 11.
- 30 15. A method of making an isolated polypeptide comprising:

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(a) culturing the recombinant host cell of claim 14 under conditions such that said polypeptide is expressed; and

(b) recovering said polypeptide.

5           16.     The polypeptide produced by claim 15.

17.     A method for preventing, treating, or ameliorating a medical condition, comprising administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 11 or the polynucleotide of claim 1.

10

18.     A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and

15           (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.

19.     A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

20           (a) determining the presence or amount of expression of the polypeptide of claim 11 in a biological sample; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.

25           20.     A method for identifying a binding partner to the polypeptide of claim 11 comprising:

(a) contacting the polypeptide of claim 11 with a binding partner; and

(b) determining whether the binding partner effects an activity of the polypeptide.

30



21. The gene corresponding to the cDNA sequence of SEQ ID NO:Y.
22. A method of identifying an activity in a biological assay, wherein the method comprises:
- 5 (a) expressing SEQ ID NO:X in a cell;
- (b) isolating the supernatant;
- (c) detecting an activity in a biological assay; and
- (d) identifying the protein in the supernatant having the activity.
- 10 23. The product produced by the method of claim 20.

## SEQUENCE LISTING

<110> Craig Rosen,  
Steve Ruben

<120> Human Cancer Associated Gene Sequences and Polypeptides

<130> PA106PCT

<140> Unassigned

<141> 2000-03-08

<150> 60/124,270

<151> 1999-03-12

<160> 1694

<170> PatentIn Ver. 2.0

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<221> misc feature

<222> (546)

<223> n equals a,t,g, or c

<400> 1

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atgtggaaca cttacaatgc cgccatcgct tacaccatcc tcagcccaag atccctgagc 480
tccctgacaa aaatatgttc accattaaca ggaacacagg rgtcatcagt gttgtcacca 540
cttggn ttgg ccgaga                                     556
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<210> 2

<211> 2662

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2662)

<223> n equals a,t,g, or c

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<400> 2
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gccaggcatg gaacggcaga atcggcgccc tggcccaggg ggcaaggctg gcagcagtgg 180
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gcttccccctg cctccccccac ctcccagcag ttctgtgtct tccgcctgga ccaagttatc 360
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aaaaaaaaaa aaaaaaaaaa tn 2662

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<210> 3

<211> 338

<212> DNA

<213> Homo sapiens

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<400> 3
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aagctccctt cttcctgctg tgtccctcca gctscctctg ctgaccagg ttagcatcat 180
gtgctctgta aaggaggaat tctggagagt ccagtcattt attacagagc tagtactgaa 240
gggtgagttt ggagttgaag aggcaatgaa attgataact ggacacagaag ccaaataataa 300
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<210> 4
<211> 813
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (784)
<223> n equals a,t,g, or c

```

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<220>
<221> misc feature
<222> (787)
<223> n equals a,t,g, or c

```

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<220>
<221> misc feature
<222> (793)
<223> n equals a,t,g, or c

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```

<220>
<221> misc feature
<222> (807)
<223> n equals a,t,g, or c

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<400> 4
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ccctcagacc actctgtgga gaacagactg tcagggaacg tgggtggagg cagagagacc 180
agaaagattc caggaggaca gatgtggtgg gacaagggtg gggagacact gaagccaagg 240
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cgtgaaggcc ttcgataggc actgcaacaa ggtgctggag aacgtgaagg agatgtggac 540
tgaggtaccc aagagtggca agggcaagaa gaagtccaag ccagtcaaca aagaccgcta 600
catctccaag atgttcctgc gcggggactc agtcatcgtg gtccctgcgga acccgctcat 660
cgccggcaag tagggggccgc ctgtctgttg acagaactca ctctctgtgc ctatgaagac 720
cgctgccatt ggtggttgaga ataataaagc tctgtgtttt tttctaaaaa aaaaaaaaaa 780
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<210> 5

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<211> 901  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (838)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (846)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (870)  
 <223> n equals a,t,g, or c

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 agcaactcgg aggacggcga gtttgagatc caggcggaag atgacgcccg ggcccggaag 180  
 ctgggacctg gaagaccctt gccacacctc cccacctcgg aatgcacctc ggatgtggag 240  
 ccggacaccc gggagatggg gcgtgcccag aacaagaaga agaagaagtc tggaggcttc 300  
 cagtccatgg gcctgagcta cccggtgttc aaaggcatca tgaagaaggg gtacaagggtg 360  
 ccaacaccca tccagaggaa gaccatcccg gtgatcttgg atggcaagga cgtggtggcc 420  
 atggcccgga cgggcagtgg caagacagcc tgcttcctcc tcccaatgtt cgagcggtc 480  
 aagaccacaca gtgcccagac cggggcccg cgcctcatcct ctgcgcgacc cgagarctgg 540  
 ccctgcagac cctgaagtgc actaaggagc taggcaagtt cactggcctc aagactgccc 600  
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 taattattgc cacgcccgga cggttggtgc atgtggctgt ggaaatragc ctgaagctgc 720  
 agagtgtgga atacgtrgtg ttcgatgaag ctgaccggct ttttraaatg ggtttcgcag 780  
 agcagctgca ggagatcatc gccgctctcc ccgggggcca ccagacggtg ctgttctncg 840  
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 t 901

<210> 6  
 <211> 731  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (106)  
 <223> n equals a,t,g, or c

<400> 6  
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 ccaccgccac catgcccaac ttcgccggca cctggaagat gcgcacagcg agaatttcga 120  
 cgagctgctg aaggcactgg gtgtgaacgc catgctgagg aaagtggccg tagcggctgc 180

```

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ggacggacgc aagtgcagga gtttagccac ttggggagaat gagaacaaga tccactgcac 360
gcaaactctt cttgaagggg acggcccca aacctactgg acccgtgagc tggccaacga 420
tgaacttata ctgacgtttg gcgccgatga cgtggtctgc accagaattt atgtccgaga 480
gtgaaggcag ctggcttgct cctactttca ggaagggatg caggctcccc tgaggaatat 540
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ttttcccat gacaatgttg tagtgtcccc caccgccacc cccaggcct tggcgcctct 660
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<210> 7

<211> 2774

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2652)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2698)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2714)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2756)

<223> n equals a,t,g, or c

<400> 7

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catgtgtggc agaggggctt cctaaccctt gcctgatagg tgcagaacgt cggctatcag 180
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aacaaggccc tagactgcag taaaaccag aactcaagta gggcagaagg tggaggctc 300
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tctcaaggct tgagttagaa gtcttaagac ctgggacagg acacatggaa ggcctaagaa 540
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ctacaaccca aggatggaag gccctgtca caaagcctac ctagatggat agaggaccca 660
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ggaaggatag aagcttgaag acctggggaa atcccaagat gagaacctta aaccctacct 780
cttttctatt gtttacactt cttactctta gatatttcca gttctcctgt ttatctttta 840

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```

<210> 8

<211> 2613

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (896)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1246)

<223> n equals a,t,g, or c

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&lt;210&gt; 9

&lt;211&gt; 1101

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature



<222> (730)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (983)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1055)  
 <223> n equals a,t,g, or c

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<210> 10  
 <211> 1373  
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 <213> Homo sapiens

<220>  
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 <222> (1364)  
 <223> n equals a,t,g, or c

<220>  
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 <222> (1373)  
 <223> n equals a,t,g, or c

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gaacatggtg agcatcgcgg tgggctgtgc caccgcaac aggacggtgc cttctgcag 480
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaanaaaaaa aan 1373

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&lt;210&gt; 11

&lt;211&gt; 3804

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 11

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&lt;210&gt; 12

&lt;211&gt; 2157

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (806)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (846)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1517)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2110)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2116)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2137)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2150)

<223> n equals a,t,g, or c

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<210> 13

<211> 1117

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (1102)

<223> n equals a,t,g, or c

<400> 13

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<210> 14

<211> 885  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (884)  
 <223> n equals a,t,g, or c

<400> 14  
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 gtggccaccg atgacctgga tttccggcac cacagctaca aggacatgcg ccagctcatg 180  
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<210> 15  
 <211> 1024  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <223> n equals a,t,g, or c

<220>  
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 <222> (1005)  
 <223> n equals a,t,g, or c

<220>  
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 <222> (1012)  
 <223> n equals a,t,g, or c

<220>  
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 <222> (1019)  
 <223> n equals a,t,g, or c

<400> 15  
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 <211> 545  
 <212> DNA  
 <213> Homo sapiens

<220>  
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<220>  
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 <222> (45)  
 <223> n equals a,t,g, or c

<220>  
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 <222> (403)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (476)  
 <223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (507)

<223> n equals a,t,g, or c

<400> 16

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atcaggactg aacacagagg actcaccatg gagtttgggc tgagctggat ttcccttgct 180
gctattttta aaggtgtcca gtgtgaggtg cagctgggtg agtctggggg aggcttggt 240
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tggatgagct ggggccgcca ggctccaggg aaggggctgg agtgggttg ccgtattaaa 360
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ctcaagagat gattcaaaaa acacgytgta tytgcaaatg aacagcctga aaaccngagg 480
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<210> 17

<211> 623

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (613)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (616)

<223> n equals a,t,g, or c

<400> 17

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tcgccccacc cggccgccgc ccgagcgctc gagaaagtcc tctcgggaga agcagcgct 180
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<210> 18

<211> 559



<212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (371)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (531)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (544)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (547)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (556)  
 <223> n equals a,t,g, or c

<400> 18  
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 attagtaatt ttaaaatgag grtggaatt aactaacaga actgatagga agtggttaaca 180  
 tacaacaggg gagtctaaga tggcttccaa ttttcaacta gaggggtaag ggtaccatta 240  
 acttaagatc attaatacag raaaattaat cagatttgga gtttaccaag gtttgctttt 300  
 gggttgtaaca atgatatatg ataaaattaa atgrataaat aagtgratgc actggtgaat 360  
 taatgagctg ntctcattaa gaccagagta cttatttata acaaaagtaa cttttccctt 420  
 tccctgggta catcaaactg tactccacag ataacagaca ccagtgaagt tttcatgggt 480  
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 gcgngcnacg gtattngga 559

<210> 19  
 <211> 1355  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (55)  
 <223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (1045)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1355)  
<223> n equals a,t,g, or c

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acaacggcac ctctgccagg gctaccacaa ccccagccag caagagcact ccattctcaa 180  
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ccagtagcac tcaccatagc acggtacctc ctctcacctc ctccaatcac agcaacttctc 300  
cccagttgtc tactgggggtc tctttctttt tctgtctttt tcacatttca aacctccagt 360  
ttaattcctc tctggaagat cccagcaccg actactacca agagctgcag agagacattt 420  
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caggtaatgg tggcagcagc ctctcttaca caaaccagc agtggcagcc acttctgcca 960  
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gaagctcatg tgggcccctga ggctcatgcc tgggaagtgt tgtgggtggg gctcccaggga 1200  
ggactggccc agagagccct gagatagcgg ggatcctgaa ctggactgaa taaaacgtgg 1260  
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaan 1355

<210> 20  
<211> 1280  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1043)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1162)  
<223> n equals a,t,g, or c

<400> 20  
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tcacgaccaa aggtgtcacc tcagtctctc agatcttcca cagcccagac ctggccataa 180
gggacacott tgtgaatgcc tctcggaccc tgtacagcag cagccccaga gtccaaagca 240
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agatcagccg gctgctagac agtctgccct ccgatacccc ccttgctctc ctcaatgcta 360
tctacctgag tgccaagtgg aagacaacat ttgatcccaa gaaaaccaga atggaaccct 420
ttcacttcaa aaactcagtt ataaaagtgc ccatgatgaa tagcaagaag taccctgtgg 480
cccatttcat tgaccaaact ttgaaagcca aggtggggca gctgcagctc tcccacaatc 540
tgagtttggg gatcctggta cccagaacc tgaaacatcg tcttgaagac atggaacagg 600
ctctcagccc ttctgttttc aaggccatca tggagaaact ggagatgtcc aagttccagc 660
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aaaaaaaaac tcaagactag                                     1280

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&lt;210&gt; 21

&lt;211&gt; 1191

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 21

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gcaattcctt ctggcttctt gtgacctcac gcaagaaaag gttgtgtact aaatgaatct 60
gctttaactt gctctccttc ctcggggatc acaccttttt aagaaagcct gtcccttacc 120
ttgaagcaca aacatattct catTTTTtatt ctcccaatac cttgaagggt ttcttctgca 180
catgtatttg tttgatctgc cttttgtgcg tgggggtggga gttaggtagg aatcttaaag 240
tgagagagcca gtttcttccc aaattactga cctaaccat ccttaacccc cagttcaagg 300
ccacctttgt gatagtgaag cttccacatg ctactcagc cccttctgct ctctcttctt 360
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gggtggtgtg tgtgcacaac ttcaacttta catgtggggc tgagtcccta tgttgtatat 480
ccttgtgcaa aagcacataa tgtaattgc tatagctttt aaaaaaataa ttaatagttt 540
ttcataatca aattttcttg cttttttgtt ttttcaaaaa agcatacttt tattgaagaa 600
taaaccocct atatatgtac acttatttat aactatgaac gcctgaacta ggatagaaat 660
gcattgtgta tattacaaaa cataacaaaa ataatagggg tagggagggtg cagatgtttg 720
tcaaaggata taaacctgca gttctatgat gaataagttc tggacatctg gaatacagca 780
tggtgactat acttagtaat actatatgtt acacttgaag cttactgaaa gagtaaattct 840
caagtgttct caccacacaa acccaaaggt aactatgttc tcaccacaca aaccaaaagg 900
gaactatgta ttaattagct tgattgtggg aaccatttca caatgtatac atttgccaaa 960
acattatgtt gtatacctgg aatatatac tttatttatc aattatacct caataaagct 1020
gaaagagggg attactaatt cccacaaaat acagatttaa caaaaacttt tattcaacaa 1080
acagtgtctat gaagttgtaa attggaaaca aaagaaataa aatttcatcc acagtcttct 1140
catcaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaactcgtag g 1191

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&lt;210&gt; 22

&lt;211&gt; 853

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 22

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cttacacagc agcaacagcc tgctacaggg ccacagccat ctctgggagt tagttttgga 60
acgccattcg gctcaggtat tggcactggc ttgcaatcaa gtggccttagg ttcttcaaac 120
cttggaggat ttggaactag ctctggtttt ggatgcagca ccacaggggc ctccacattt 180
ggattttgga caacaaataa accctcagga agtcttagtg caggccttgg cagctcaagt 240
acatctgggt ttaacttcag caatcctggc atcacggcat cagctggttt gacttttggg 300
gtgtccaatc ctgcctctgc aggttttgga acaggaggac aactccttca gttgaagaaa 360
cctccagctg graacaaaag aggaaaaaga taaacatggg ttgatgtgtt gagagaatcc 420
atagcagcac cgttcattct atgagtctat ttttctaata atgcagtaat taaattgcat 480
cccaggagat ttataaagtt ttgatatttt tccctactct ggratttgaa ctttcttcat 540
gtttgccata ctgaacawct ttttcttgtt ggaattttaa gtccagctgt gttttctttt 600
taatttgatt ctcagtgtaa gaaatgttct gattacatca ctgattggta atgggttaga 660
accattaacc taaaacttac tatttaacct agtgtttttg ttgatgaggt ttacattatg 720
tgaatacatg cacatttggt tcttatacag gtgggtgtgaa ctctagggcc tatactagaa 780
tcaatttggt ccttggttaa ggccttttga attatactgc agggcatctt gtgaatatgt 840
atgtaaatat ata 853

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&lt;210&gt; 23

&lt;211&gt; 474

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 23

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ggcacgagct cgtccggccc gtgggtctga cggcttgagt agcgctaggg agaatccctg 60
caggtaatat ttgacttttg cttcatatta atctgagtgg aaaataaaaag ggccctcttc 120
tcctctcgct tccctgccgg gcaggcgcca tggcggaagc tcggcgacgg gcgcctgcgg 180
agaggcgatg gcagcgggcg aaggctcctc gggcccggcg ggcttgactc tgggcccggag 240
cttctcgaac taccggccct tcgagcccca ggcgttgggc ctacagcccg gctggcggt 300
gacgggcttc tccggcatga agggctgagg ctgcaagggt ccgcagaggg gctgctcaa 360
ctcctggcgg gactgamcgg gccggacktk cggccccgct gggccggggc ctkgtkggk 420
gccargaara agcgtcccag gaagccggcc tgccggcaag agcggggccc agcc 474

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&lt;210&gt; 24

&lt;211&gt; 2280

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (13)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 24

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ctctccccct ccnaccctc ccgctccaag attcgccgcc gccgcccggc cagccgcagg 60
agtagccgcc gccggagccg cgcgcarcca tggccgagaa cccagccttg gagaaccacc 120
gcatcaagag cttcaagaac aagggccggc atgtggaaac aatgcgaaga catagaaatg 180
aagtgcaggt ggaactgcgg aagaacaaaa gagatgaaca cttattgaaa aagagaaatg 240
ttccccaaga agaaagtcta gaagattcag atgttgatgc tgatttttaa gcacaaaatg 300

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taaaatctgg gattttacca attctagtca aatgtctaga aagggatgat aatccttcat 480
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aatgattttc attggtggaa ctgacacaaa aaaagtaact taaaaacaag aaacttggtt 2220
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&lt;210&gt; 25

&lt;211&gt; 1061

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 25

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atggcaggct ctgaagagct ggggctccgg gaagacacgc tgagggctct agctgccttc 180
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aaccagaagc tggcctcgga ccccgccctg gcgacaagct ggtccgcctg tcctccgact 600
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catgccccgg gcccccgcct ccttccccgg agccccctggc ccgcctggcc ctagccatgg 720
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<210> 26

<211> 1572

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (19)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (28)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1491)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1527)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1555)

<223> n equals a,t,g, or c

<400> 26

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gggcagctgc ggacatgtcg accccggccc ggaggaggct catgcgggat ttcaagcggg 180
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acaaatttta agtgccacag gttttaagga ttctgcagaa aaaaaagaaa aaagtccttc 720

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taatgttggg gtggagtttt catgacagaa tatacacatt ttgtaaatct gtactttttt 900
caaattattga atgccttatt tttgaattct ttagattttt aaattggaga aaagcactta 960
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ggggggggga atcttggggg gttaacnttt aaattatttt gggaaaattt acccntttta 1560
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<210> 27

<211> 2005

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1976)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1977)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1978)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1979)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1986)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1988)

<223> n equals a,t,g, or c

&lt;400&gt; 27

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cgccctccgcc gcctagcgct gttcccgggt gtggcgctgc ttcttgccgc ggcccgccctc 180
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cactgtttat ggaaatacca ggaccagttt atgtttgtgg ttttgggaaa aattatttgt 1860
gttgggggaa atgttggtgg ggtgggggtt agttgggggt attttcta at ttttttgta 1920
catttggaac agtgacaata aatgagaccc ctttaaaaaa aaaaaaaaaa aaaaannng 1980
gggggncnc cagtccatt cgccc 2005

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&lt;210&gt; 28

&lt;211&gt; 1408

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (11)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 28

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cccgcagaca ngcaattttt acctgtgagg tccctggtgt ctactacttt gsataccacg 60
ttcactgcaa ggggggcaac gtgtgggttg ctctattcaa gaacaacgag cccgtgatgt 120
acacgtacga cgagtacaaa aagggttcc tggaccaggc atctgggagt gcagtgtgc 180
tgctcaggcc cggagaccgg tgttcctcca gatgccctca gaacaggctg caggactgta 240

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tgccgggcag tatgtccact cctccttttc aggatattta ttgtatccca tgtaaaaaaca 300
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tccaaatgaa aaacataatt gcttcaaaac acttacacag ttggaaagtt atatgtaagt 420
gaaaatttgg accattgtgt acaataaaaa actaagatgc atgtttaata ctccacacag 480
cagcctgtaa ttgcgaatga tgggatagag ttatgtatca agtactgaca cttggttgta 540
cccactggaa tcatattagc tgttttatgt tatatgcttc cacagtaacc tgcttattca 600
gatcagtcaa aatatatcag tatgaaagat catagctaata gaaaggcact cactcatatt 660
gtttacttta aaatatattat aaatatgcct taaagaaata caaatgataa caattacata 720
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tctgttttagc atgtatgcaa actggata 1408

```

&lt;210&gt; 29

&lt;211&gt; 917

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 29

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ggcacgagcg aggggaggag ccgctggctc ccagccccgc cgcgatgagc ctcgcccgcc 60
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ggaccatgtg cgcgtcccg gacgactggc gctgtgcgct ccatgcacga kttttccgcc 180
aaggacatcg acgggcacat ggttaacctg gacaagtacc ggggcttcgt gtgcacgtc 240
accaacgtgg cctcccagtg aggcaagacc gaagtaaaact aactcagct cgtcgacctg 300
cacgcccgat acgctgagtg tggtttgcg atcctggcct tcccgtgtaa ccagttcggg 360
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ttcgatatgt tcagcaagat ctgctgaac ggggacgacg cccacccgct gtggaagtgg 480
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aagttcctca tcgacaagaa cggctgcgtg gtgaagcgct acggacccat ggaggagccc 600
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gagcccctgc ccacgccty ggagccttc accggcactc atgacggcct gcctgcaaac 720
ctgctggtgg ggcagaccgg aaaatccagc gtgcaccccg ccggaggaag gtcccatggc 780
ctgctgggct tggtcggcg cccccacccc tggctacctt gtgggaataa acagacaaat 840
tagcaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 900
aaaaaaaaa aaaaaaa 917

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&lt;210&gt; 30

&lt;211&gt; 577

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

<222> (501)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (534)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (568)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (575)  
 <223> n equals a,t,g, or c

<400> 30  
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 gagttcaaga ccagcgtggc caacgtgggtg aacctgtct ctactaaaaa tacaaaaatt 180  
 gtttagctct gtttttcata atagaaatag aaaaggtaaa attgcttttc ttctgaaaag 240  
 aacaagtatt gttcatccaa gaagggtttt tgtgactgaa tcagcagtgc ctgccctagt 300  
 catagctgtg cttcagaaac ctcagcatga ttagtgttkg agcmmaacaa ggragcaaag 360  
 caaatwcwgt ttttgaaatt ctatctgttg cttgaactat tttgtaataa ttaactttg 420  
 gatgttgaga aatcacaaact ttattggtac acttcattgc aacttgaaat tccatgggtc 480  
 ttaaagtgag attggaattc naatgggcgg cctttaaaaa gtaattccca accnttaagg 540  
 ttaaaaccca ggaaattggg gccaatcnaa aaccngg 577

<210> 31  
 <211> 2059  
 <212> DNA  
 <213> Homo sapiens

<400> 31  
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 actccttttt gcagtggaac caggactata tttctctgtg aagacaaaca ttcgaagctc 180  
 aacaagagac tggaaggacc ataaatttaa atggagaaa gacctcaag acaaagacc 240  
 cccatcccat gggggtaata agagcagtag cagcagcatc tctgaacatt tctctggatt 300  
 tgcaacccca tcatcctcag gcctctctac aagcagcagg aaacatagaa ctgagagcca 360  
 gatcccttat ccaactctcg acttttccct ggtctccagt ggaagggaaa agcccatgat 420  
 cttcaagcag ggaagcccca gtgagtagct gcattccctg aaattgaagt ttcagrgcta 480  
 cacaaacamt tttctgtccc aaccgttccc tcacagcaaa gcaacaatac aggctaggga 540  
 tgaaggagga gtgcaaaara gtgtccccac cctcctgccc cccgcaccgt ttgcccaccc 600  
 ttcggaagac ccagtgtgtg gatgagtatg agtgtgctg caactgtgtc aatccacagt 660  
 gagctgtccc cttgggtact tggcctcaac cgccaccaat gactgtgggt gtaccacaac 720  
 cacctgcctt cccgacaagg tgtgtgtcca ccgaagcacc atctaccctg tgggccagtt 780  
 ctgggaggag ggctgcgatg tgtgcacctg caccgacatg gaggatgccg tgatgggcct 840  
 ccgcgtggcc cagtgtctcc agaagccctg tgaggacagc tgtcggtcgg gcttcaacta 900

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<210> 32
<211> 549
<212> DNA
<213> Homo sapiens

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<220>
<221> misc feature
<222> (337)
<223> n equals a,t,g, or c

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<220>
<221> misc feature
<222> (378)
<223> n equals a,t,g, or c

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```

<220>
<221> misc feature
<222> (497)
<223> n equals a,t,g, or c

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<220>
<221> misc feature
<222> (537)
<223> n equals a,t,g, or c

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<220>
<221> misc feature
<222> (546)
<223> n equals a,t,g, or c

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tctagaggat ccaagcttac gtacgcgtgc atgcgacgtc atagctcttc tatagtgtca 180  
cctaaattca attcactggc cgctggtttta caacgtcgtg actgggaaaa ccctggcggtt 240  
acccaactta atcgccttgc agcacatccc cctttcgcca gctggcgtaa tagcgaagag 300  
gcccgcaccg attcgcctt tcccaacagt tgcgcancgt gaatggcgaa tggggacgcg 360  
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acttgccagc gccctagcgc ccgctccttt cgctttcttc ccttcctttc tcgccacgtt 480  
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ctttanggt 549

<210> 33  
<211> 841  
<212> DNA  
<213> Homo sapiens

<400> 33  
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gcagccccac agaccatggg catgccaggt ggttgtagta caatcccaga gtcagacct 180  
gaagaaagat cagtagaaca agactctaca gaactgttta ccaaccacag acatctcact 240  
gcagagacac ccaggcctgt ttcacccctc caaggagtct cggaataatt ccaagtagag 300  
ttgtttggtt gagaggaaca tccccatctc aaggccgaac ctgtgtgaac ctcatgccaa 360  
gcacagatat arggctggcg cagggtgcttc cyaaagctya ccttcctgga gatgacatgc 420  
atagaaagag gggttgggac tttttacttc actaggagaa cttgtaacac catggggaag 480  
tcagctgaaa cttgtcttgt tttgccagga aaggaagtag ttgccttttg tcatccatct 540  
gctaatagtc acagaatata gtgaaatgac atagttttgg gttagatttt ataatgcaa 600  
gattcagatc caaaataatt tcatacccca ttttttcaca gaattcttat atagtaaag 660  
tatcaagttt aataaagcat ctcatgttca aataatatct tggattttat ttataattag 720  
agggatttat gagtgattgc tctacattat ttcttcaaag gaaaggaaag gaattgaaga 780  
ctttgctact ctctggtaag acttgaatgt gattatttta taaataaaa aaccactatg 840  
a 841

<210> 34  
<211> 863  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (19)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (29)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature

<222> (44)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (58)  
 <223> n equals a,t,g, or c

<400> 34  
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 tggaatcccc cgggggcttt caaggaattc ggcacgagtt tgcttaggcg cagacgggga 120  
 agcggagcca acatgccagt ggcccggagc tgggtttgtc gcaaaactta tgtgaccccg 180  
 cggagaccct tcgagaaatc tcgtctcgac caagagctga agctgacgag cgagtatggg 240  
 ctccggaaca aacgtgaggt ctggagggtc aaatttacct tggccaagat ccgcaaggcc 300  
 gcccgggaac tgctgacgct tgatgagaag gaccacggc gtctgttcga aggcaacgcc 360  
 ctgctgcggc ggctgggtccg cattgggggtg ctggatgagg gcaagatgaa gctggattac 420  
 atcctgggcc tgaagataga ggatttctta gagagacgcc tgcagaccca ggtcttcaag 480  
 ctgggcttgg ccaagtccat ccaccacgct cgcgtgctga tccgccagcg ccatatcagg 540  
 gtccgcaagc aggtgggtgaa catcccgctc ttcatgtgcc gcctggattc ccagaagcac 600  
 atcgacttct ctctgcgctc tccctacggg ggtggccgcc cgggccgcgt gaagaggaag 660  
 aatgccaaga agggccaggg tggggctggg gctggagacg acgaggagga ggattaagtc 720  
 cacctgtccc tcttgggctg ctggattgtc tcgttttctt gccaaataaa caggatcagc 780  
 gctttacaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 840  
 aaaaaaaaaa aaaaaaaaaa ttt 863

<210> 35  
 <211> 1230  
 <212> DNA  
 <213> Homo sapiens

<400> 35  
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 tcaggcagct gcagagcttc aacagtactg tatgcagaat gcctgcaagg atgccctgct 180  
 ggtgggtggt ccagctggaa gtaacccctt ccgggagcct agatcctgtg ctttactctg 240  
 aagactctag gagagaagtt tgctgaggaa tgccttcaag cacaaagtga tgaatgactg 300  
 ccttcaagtc tcaagaaaac acttttccct aactttttaga gatatttcag ccctttcctg 360  
 tggcctggtc ctatagccaa aatcacagat attcatgagt ttctacttga gtgagaaaac 420  
 tgggtgaagg aatagaattt taaatagtaa taactgcttg ttttttttgt gcaagtactt 480  
 ttatacataa gataaataaa aaccttacca ccaaacatac caaaatgcac ctctttcata 540  
 agtgagttac taagatttct atacctggaa tatcatgtat gtttcattta ctggatgttt 600  
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 aaatgaagac cagaaagtac aaattgctgg gaggaagaat aggctttatt aatcaactga 780  
 tgtcttgatt tttctaaatg ggaagattgc tttattttta acactaatta tgggagcaga 840  
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 gaacattgta aatgattaaa aactaacatg aaaatattac aacctaaaag aattcttaac 1080  
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attaatcatt tttctatgac agcaaaaaaa

1230

<210> 36

<211> 640

<212> DNA

<213> Homo sapiens

<400> 36

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ctatccgcac tagaaagttc atgaccaacc gactacttca gaggaacaa atggtcattg 180  
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aaatgtacaa gaccacaccg gatgtcatct ttgtatttgg attcagaact cattttggtg 300  
gtggcaagac aactggcttt ggcattgattt atgattccct ggattatgca aagaaaaatg 360  
aaccctaaaca tagacttgca agacatggcc tgtatgagaa gaaaaagacc tcaagaaagc 420  
aacgaaagga acgcaagaac agaatagaaga aagtcagggg gactgcaaag gccaatgttg 480  
gtgctggcaa aaagccgaag gagtaaagggt gctgcaatga tgtagctgt ggccactgtg 540  
gatttttcgc aagaacatta ataaactaaa aacttcaaaa aaaaaaaaaa aaaaaaaaaa 600  
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaagg 640

<210> 37

<211> 597

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (10)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (32)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (556)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (558)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
 <222> (567)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (590)  
 <223> n equals a,t,g, or c

<400> 37  
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 gtccggcagc gccagcccta cactcgcccg cgccatggcc tctgtctccg agctcgccctg 180  
 catctactcg gccctcattc tgcacgacga tgagggtgaca gtcacggagg ataagatcaa 240  
 tgccctcatt aaagcagccg gtgtaaatgt tgagccctttt tggcctggct tgtttgcaaa 300  
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 ctttggtctt ttgactaaa cctcttttat aacatgttca ataaaaagct gaactttaaa 540  
 aaaaaaaaaa aaaaancncg ggggggnccg ctttaaaggg tccaagttn gtacggg 597

<210> 38  
 <211> 624  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (79)  
 <223> n equals a,t,g, or c

<400> 38  
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 gaggagacca tcgagggcat gctcctcagg ctggaagagt tttgcagcct ggctgacctg 180  
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 acagaaatgc gtggcatcta tgccaaagtg gaccggctag aggccttcgt caagatggtt 300  
 ggacaccacg tcgccttcct ggaagcagac gtgcttcagg ctgagcggga ccatggggcc 360  
 ttccctcagg ccctgcggag gtggctggga tccgcaggct cccctccttc aggaacaagt 420  
 camctgsacc kgtgcccgtg acgtacgagc tgcccacact gtataggacg gaggactatt 480  
 ttctgtgga cgccgggkaa gcacagcamc amccccgcac ctgccctcgg cctttgtgag 540  
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 gggttttttc tttgtattgc tggt 624

<210> 39  
 <211> 1029  
 <212> DNA  
 <213> Homo sapiens

<400> 39  
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<210> 40

<211> 1107

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1098)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1106)

<223> n equals a,t,g, or c

<400> 40

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ggggcaagggt gagagtacct gtgcttgggg cgcttcactg cagctgcctg ggggtgcctg 240
tggaatgacg tttgcacgct aggtgtactt ttcttttatt tacctatggt tggggcaagg 300
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acaaattgggt gttctaaatg tcttaagaac ctaattaaat agctgactac aaaaaaaaa 1020

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aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa ccccgggggg 1080
gggcccgggt cccatttngc cctttng 1107

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<210> 41

<211> 1051

<212> DNA

<213> Homo sapiens

<400> 41

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tgtggctgct ggtgaaaagc ttctccgaga gtggaatcaa ctatgaaatt ataatcatag 180
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atggaatgaa acatgccaca ggaaactaca tcattattat ggatgctgat ctctcacacc 360
atccaaaatt tattcctgaa tttattagga agcaaaagga gggtaatttt gatattgtct 420
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caggaagttt cagattatac cgaaaagaag ttctagagaa attaatagaa aaatgtgttt 600
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<210> 42

<211> 2192

<212> DNA

<213> Homo sapiens

<400> 42

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cggttctcct ggcgccaaagg gtgaccgtgg tgagaccggc cccgtggag cccctgggtg 660
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```

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actcgggggg ggcccggtac caattggcct aa 2192

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&lt;210&gt; 43

&lt;211&gt; 353

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (37)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (348)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 43

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tctctaatac gactcactat agggaaagct ggttacnctg caggtaccgg tccggaattc 60
ccgggtcgac ccacgcgtcc ggtggggcct caccaagttc aatgctgatg aatttgaaga 120
catggtggct gaaaagcggc tcatcccaga tggctgtggg gtcaagtaca tcccagtcg 180
tggccctctg gacaagtggc gggccctgca ctcatgagg cttccaatgt gctgcccccc 240
tcttaatact caccaataaa ttctacttcc tgtccaaaaa aaaaaaaaaa aaaaaaaaaa 300
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaanaa aag 353

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&lt;210&gt; 44

&lt;211&gt; 3490

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

<222> (782)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1311)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (2298)  
 <223> n equals a,t,g, or c

<400> 44  
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<210> 45

<211> 781

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (750)

<223> n equals a,t,g, or c

<400> 45

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<210> 46

<211> 1431

<212> DNA

<213> Homo sapiens

<400> 46

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<210> 47

<211> 1913

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (43)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1878)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1896)

<223> n equals a,t,g, or c

<220>

<221> misc feature

&lt;222&gt; (1905)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1907)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 47

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cctggaatct ttggatgtgt gccagttca cagattggac cctattgggt tgtggtgggg 1860
ccagggcatc caaagacntc attggactaa ttcacnttcc cccgnanagc ccc 1913

```

&lt;210&gt; 48

&lt;211&gt; 1761

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 48

```

cgaggagctc tgagggtctat gctcagctgt gcaacgtggc tcgcattgag gcagagcggg 60
aggccggggg ccacttccgg ccaggctatg agtatggccc cgggcccgat gacctgcact 120
acagcatcta tggcccagat ggggccccct tctacaacta cctgggcccc gaggacaccg 180

```

```

tccctgagcc tgccttcccc aacacagccg gtcactcagc ggaccgcaca cccatccttg 240
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cagccggctt cgaagggtt cagggcgagg agtgcggcat cctgaacggc tgtgagaatg 360
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ggcaggcatt cctctgagtt tacaagcaga gactcactcc aacccaaact agctgggagt 1680
tcagaaccat ggtggaataa agaaatgtgc atctggtcaa aaaaaaaaaa aaaaaaaaaa 1740
aaaaaaaaaa aaaaaaaaaa g                                     1761

```

<210> 49

<211> 956

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (352)

<223> n equals a,t,g, or c

<400> 49

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tgcaggagtt cggcacgagg gtatttagag cgcaggngctg acggggccgga tgccttcgc 60
cgccgccccg cgcgaacact tcgtgcccg cccgtcctcg cccccgcctc cgccaccgcc 120
tcggccccga gagcttgccc cctccccacc cgcagacatg tccgagtcca agagcggccc 180
cgagtatgct tcgtttttcg ccgtcatggg cgctcggcc gccatggtct tcagcgcct 240
gggcgtgccc tatggcacag ccaagagcgg tacccgcatg gcgccatgt ctgtcatgcg 300
gccggagcag atcatgaagt ccatcatccc agtggtcatg gctggcatca tngycatcta 360
cggcctgggt gtggcagtc tcatcgccaa ctccctgaat gacgacatca gcctctacaa 420

```

```

gagcttcctc cagctgggcg ccggcctgag cgtgggcctg agcggcctgg cagccgggctt 480
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cgtgggcatg atcctgattc tcattcttcgc cgagggtgctc ggccctctacg gtctcatcgt 600
cgccctcacc ctctccacaa agtagaccct ctccgagccc accagccaca gaatattatg 660
traagaccac cctcctcat cgccctcca ggccccggc gccccacccc cttagagtgt 720
ctgtgtatgc ggatgattta gaattgtcat ttctctttac tggatgttta ttataaaga 780
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wmcgkcccgt ggccctgcgc ggagctgtgt ccaataaagt tcttgatgt gaaaaa 956

```

<210> 50

<211> 563

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (510)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (519)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (530)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (558)

<223> n equals a,t,g, or c

<400> 50

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cggacgcgtg ggcgcctcc gaatccagag aggcgctgct gacaccgccg ccacaccgcc 60
gccacaccgc cgctgcctca gtcatgccga agcacgagtt ctctgtggac atgacctgtg 120
gaggctgtgc tgaagctgtc tctcgggtcc tcaataagct tggaggagtt aagtatgaca 180
ttgacctgcc caacaagaag gtctgcattg aatctgagca cagcatggac actctgcttg 240
caaccctgaa gaaaacagga aagactgttt cctaccttgg ccttgagtag caggggcctg 300
gtccccacag cccacaggat ggaccaaagg gggcaggatg ctgacctcc cgctggcttc 360
cagacagacc tgggacttgg cagtcatgcc gggtgatggt gttcctgcgg agaccctcag 420
ttgtcctatt ccttcctagc ttccctgcaa taaaatcaag ctgcttttgt tggaaaaaaa 480
aaaaaaaaaa gggggcgtct aaaaaccaan ttatttccnt gatgaaatcn acctctttgt 540
tcccatcat ccggcctnaa aaa 563

```

<210> 51

<211> 3215

<212> DNA

<213> Homo sapiens



&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (3196)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 51

```

gcctcgggtg ggggtgggagc ggggggggaca gtgccccggg aaccgcgggtg gtcacacaca 60
cgactgcgc ctgtcagtag tggacattgt aatccagtcg gcttgttctt gcagcattcc 120
cgctcccttc cctccatagc cacgctccaa accccagggt agccatggcc gggtaaagca 180
agggccattt agattaggaa ggtttttaag atccgcaatg tggagcagca gccactgcac 240
aggaggagggt gacaaacat ttccaacagc aacacagcca ctaaaacaca aaaaggggga 300
ttgggcggaa agtgagagcc agcagcaaaa actacatttt gcaacttggt ggtgtggatc 360
tattggctga tctatgcctt tcaactagaa aattctaagt attggcaagt cacgttggtt 420
tcaggctcag agtagtttct ttctgtctgc tttaaatggr aacagactca taccacactt 480
acaattaagg tcaagcccag aaagtataa gtgcaggagg gaaaagtga agtccattat 540
gtaatagtga cagcaaagg accaggggag aggcattgcc ttctctgccc acagtctttc 600
cgtgtgattg tctttgaatc tgaatcagcc agtctcagat gcccacaagt ttcggttcct 660
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tgtgtcagaa aaaggaaacc acagtgcagc tgagagagac ggcgattttc gggctgagaa 780
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catttccttt gaacttgatt gcctatggat caaagaaatt cagaacagcc tgcctgtccc 1260
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ttcctaatta tcgctagggc caaggtggga tttgtaaagc tttacartaa tcattctgga 2520
tagagtcttg ggaggtcctt ggcagaactc agttaaatct ttgaagaata tttgtagtta 2580
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aatcagagct ccagtttgca tttggatgtg taaattacag taatcccatt tcccaaacct 2760
aaaatctggt tttctcatca gactctgagt aactgggtgc tgtgtcataa cttcatagat 2820
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cagatgtttt gatgttatcg cttatgttaa tagtaattcc cgtacgtgtt cattttattt 3120
tcatgctttt tcagccatgt atcaatattc acttgactaa aatcactcaa ttaatcaawa 3180
aaaaaaaaaa aaaccncggg ggggggcccg gaacc 3215

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<210> 52

<211> 626

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (571)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (572)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (573)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (618)

<223> n equals a,t,g, or c

<400> 52

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cagtttgtgt attgcggcaa gaaggcccag ctcaacattg gcaatgtgct ccctgtgggc 60
accatgcctg aggggtacaat cgtgtgctgc ctggaggaga agcctggaga ccgtggcaag 120
ctggcccggg catcaggga ctatgccacc gttatctccc acaaccctga gaccaagaag 180
accctgtgtg agctgccctc cggctccaag aaggttatct cctcagccaa cagagctgtg 240
gttggtgtgg tggctggagg tggccgaatt gacaaaccca tcttgaaggc tggccgggcg 300
taccacaaat ataaggcaaa gaggaactgc tggccacgag tacggggtgt ggccatgaat 360
cctgtggagc atccttttgg aggtggcaac caccagcaca tcggcaagcc ctccaccatc 420
cgcagagatg cccctgctgg ccgcaaagtg ggtctcattg ctgcccgcgc gactggacgt 480
ctccggggaa ccaagactgt gcaggagaaa gagaactagt gctgagggcc tcaataaagt 540
ttgtgtttat gccaaaaaaa aaaaaaaaaa nnnngggggc cgctttarag rwtcctccaa 600
ggggccaact tacccttnca tgcaaa 626

```

<210> 53

<211> 920

<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (617)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (621)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (725)  
<223> n equals a,t,g, or c

<400> 53  
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ctctgctact atgatcccaa ttcagatgct gacagtgaag ccgtgaaggc agcaaagggtg 120  
tggaactcgc cagagtccctg gtgggtgagc agcagcagtg ccasgatgcc aagagccagc 180  
agaaggagca gatgttgctg ctggagaaka agagtgcctg ttactcccag gtgcttctcc 240  
gctgcctcac tttgctgcag aggcttcttc aagaacaccg gctgaagact caatccgagc 300  
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gtctgattag ggaccgtttg gagggagcca ttcacctaca ggagcaggac atggagaact 480  
caagacaggc cctgaactcc tatgaggtcc ttggggagga gtttgacagg ctggtgaaag 540  
agtacaccgt actcaagcag gcaacagaga acaagcgggtg ggccctccag gagttcagca 600  
aggtctaccg ttgagcntcg ncagggccag gagacatggc ttctgcatag ctgctgcctc 660  
ctaattcttc tgctagtggg accaccttca cctggggctg ccttcagtac aagggagtgt 720  
ggaanatstt acgcttgaaa cactgcagtc atttaggcac tctcctggtt tctctttatt 780  
ttttatgact gggcctcttc tggaaaatct agcaaggaga tttatataat ttttatgcat 840  
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attawaaaaa aaaaaaaaaa 920

<210> 54  
<211> 1090  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1024)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1034)  
<223> n equals a,t,g, or c

&lt;400&gt; 54

```

gagtaaccca gaaatgatgt tgcatttttt gctttacctg ataattgaaa ctttcaacaa 60
tctctggagt gactttttct cctogaattg aaacaagtct atggcaaaag aagctgcatt 120
tttttcacaa aagggaagat ggtaacaatg gtcacttcaa acttttgggc taaattatat 180
gtacacagaa atgttcaaaa tcatagtttt aatgtgtttt gaaaaggcca cacaattata 240
ctttatcttt tcttaataat cctgcaaatc tctgccctgg aatccgaaat ctgaaaatgt 300
actggcttga acaaaatttg ttttgtgtgt tagagttata aatcattaat ctttatttcg 360
ggtaggttac gtttatgcca gttcctttat atttaaattt cttgttttat atattttgaa 420
tgtctttata gatttcttta aatttcctta tagaaccatt aatagaaaat cattacattt 480
aaaatatacc ttacagcaaa agcatccaaa taagtatagg gtttatgtcc ttatttttct 540
ttcagctgaa tacgaatgaa cacagtgggt gaatttctga agggaaagtga tgaaattata 600
tttatttcag tgggcacttt tccattttac cactgtacca ttatttggtt cctggagtta 660
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aattgcatga agtggattga tcatgagcaa atgatgtgct tatttctccc tcaactgtga 960
atatctttga acttgctgtt ttcaatatgg gcagcacaaa ggtgagagat acatattaat 1020
agtngtatgt attnctctta tacattagat acctatattt aatgaaaag gccaatattg 1080
aaacatatac                                     1090

```

&lt;210&gt; 55

&lt;211&gt; 1464

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (766)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 55

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ccgctccgga attcccgggt cgaccacgc gtccgccac gcgtcgcca cgcgtccggg 60
gacgtctca gctctcggcg cacggccag cttccttcaa aatgtctact gttcacgaaa 120
tcctgtgcaa gctcagcttg gaggtgatc actctacacc cccaagtga tatgggtctg 180
tcaaagccta tactaacttt gatgctgagc gggatgcttt gaacattgaa acagccatca 240
agaccaaaag tgtggatgag gtcaccattg tcaacatttt gaccaaccgc agcaatgcac 300
agagacagga tattgccttc gcctaccaga gaaggaccaa aaaggaaactt gcatcagcac 360
tgaagtcagc cttatctggc cacctggaga cggtgatttt gggcctattg aagacacctg 420
ctcagtatga cgcttctgag ctaaaagctt ccatgaagg gctgggaacc gacgaggact 480
ctctcattga gatcatctgc tccagaacca accaggagct gcaggaaatt aacagagtct 540
acaaggaaat gtacaagact gatctggaga aggacattat ttcggacaca tctggtgact 600
tccgcaagct gatggttgcc ctggcaagg gtagaagagc agaggatggc tctgtcattg 660
attatgaact gatggacca gatgctcggg attcttatga cgctggagtg aagaggaaag 720
gaactgatgt tcccaagtgg atcagcatca tgaccgagcg gagtgnccc acctccagaa 780
agtatttgat aggtacaaga gttacagccc ttatgacatg ttggaaagca tcaggaaaga 840
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caagagaaaag tacggcaagt ccctgtacta ttatatccag caagacacta agggcgacta 1080
ccagaaaagcg ctgctgtacc tgtgtggtgg agatgactga agcccagacac ggccctgagcg 1140

```

```

tccagaaatg gtgctcacca tgcttccagc taacaggtct agaaaaccag cttgcgaata 1200
acagtccccg tggccatccc tgtgaggggtg acgttagcat tcccccaac ctcatTTtag 1260
ttgcctaagc attgcctggc ctctctgtct agtctctcct gtaagccaaa gaaatgaaca 1320
ttccaaggag ttggaagtga agtctatgat gtgaaacact ttgcctcctg tgtactgtgt 1380
cataaacaga tgaataaaact gaatttgtac tttaraaaaa aaaaaaaaaa aactyrgggg 1440
ggggcccgka cccattggcc ttag                                     1464

```

<210> 56

<211> 985

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (647)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (875)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (962)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (973)

<223> n equals a,t,g, or c

<400> 56

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agaagttgct agtgttcaat gcagctgggg tgaaacccca ggggcaaggt ggctggcttt 60
gatctggacg ggacgctcat caccacacgc tctgggaagg tctttccac tggccccagt 120
gactggagga tcttgtaccc agagattccc cgtaagctcc gagagctgga agccgagggc 180
tacaagctgg tgatcttcac caaccagatg agcatcgggc gcgggaagct gccagccgag 240
gagttcaagg ccaaggtgga ggctgtggtg gagaagctgg ggggtcccctt ccaggtgctg 300
gtggccacgc acgcaggctt gtaccggaag ccggtgacgg gcatgtggga ccactctgacg 360
gagcaggcca acgacggcac gcccatatcc atcggggaca gcatctttgt gggagacgca 420
gccggacgcc cggccaactg ggccccgggg cggaagaaga aagacttctc ctgcgccgat 480
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tggccagcag cgggcttcga gctcccagcc tttgatccga ggactgtctc ccgctcaggg 600
cctctctgcc tccccagatc cagggccctc ctgagcgcca cccggangtg gttgtcgag 660
tgggattccc tggggccggg aagtccacct ttctcaagaa gcacctctg tgggccggat 720
atgtccacgt gaacagggac acgctaggct cctggcagcg ctgtgtgacc acgtgtgara 780
cagccctgaa gcaagggaac cgggtcgcca tcgacaacac aaaccagac gccgcgagcc 840
gcgccaggta cgtccartgt gcccgagccg cgggngtacc cctgccgctg ctctctcttc 900
accgccactc tggagcaggc gcgccacaac aaccgggtga gcccgttca gcccgggaca 960
cnccccgggg atngcacccc ctgga                                     985

```

<210> 57  
 <211> 1246  
 <212> DNA  
 <213> Homo sapiens

<400> 57  
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 aaggccgtgg tgcagcgcgt caccggggcc agcgtcacag ttggaggaga gcagattagt 120  
 gccattggaa ggggcatatg tgtgttgctg ggtatttccc ttgaggatac gcagaaggaa 180  
 ctggaacaca tgggtccgaaa gattctaaac ctgctgttat ttgaggatga gagtgggaag 240  
 cactggctga agagtgtgat ggacaaacag tacgagattc tgtgtgtcag ccagtttacc 300  
 ctccagtgtg tcctgaaggg aaacaagcct gatttccacc tagcaatgcc cacggagcag 360  
 gcagagggct tctacaacag cttcctggag cagctgcgta aaacatacag gccggagctt 420  
 atcaaagatg gcaagtttgg ggcctacatg caggtgcaca ttcagaatga tgggcctgtg 480  
 accatagagc tgggaatcgcc agctcccgcc actgctacct ctgacccaaa gcagctgtca 540  
 aagctcgaaa aacagcagca gaggaagaa aagaccagag ctaagggacc ttctgaattc 600  
 aagcaaggaa agaaacactc cccgaaaaga agaccgcagt gccagcagcg gggctgaggg 660  
 cgacgtgtcc tctgaacggg agccgtagct caggaggcag aattcagtgt gttatcattg 720  
 ggcagaactg gatcctgaaa aattcaagat gctaagcacc tacactactt taagaatttg 780  
 gaactgaaac atgaagagga agacagaaat aagaatttgg gaacctgaat agctctgcaa 840  
 aaaacaccaa aggaccgttt tatcgttttc tgttgttgct gtggtggagt gatgcagtgg 900  
 gcactkccsg tgggccaggg ggcgggtgcg catgtggtag aagggtgtgcg ctctgtgcctc 960  
 cccacagaaa aggctttgtt ggtttctacc acatcttggc ttgcttttgg aacaggctgg 1020  
 ccccgacatc atttgtcatc aagtccactg tgggtgtattc tgcgtgtcca tggcgggggg 1080  
 tctccaayac actcacactg tccatgttct ttttattgcc agggcccgtg ttgaagtgtc 1140  
 aagagagcaa tcatcaatga taatgtattg tgtgagacct ttgcatcttg taaattttct 1200  
 cttttttcta aaaataaata ataataaaat cctaaatctc aacaaa 1246

<210> 58  
 <211> 1966  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (1926)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1942)  
 <223> n equals a,t,g, or c

<400> 58  
 gggagaaaaga tccttcactc acagaaccag ttattagggg gttaatgaaa ttttggccta 60  
 aaacatgtag tcaaaaagag gtcatgttcc ttggggactg gaagaaatat tggatgtgat 120  
 tgaaccttca caatttgtaa aaatccaaga acctttgttt aaacaaatcg ccaagtgtgt 180  
 atctagcccc cattttcagg tggcagaaaag agcactctat tattggaata atgaatacat 240  
 catgagtttg atagargaaa actotaacgt catccttccc atcatgtttt ccagccttta 300  
 taggatttca aaagaacatt ggaatccggc tattgtggcg ttggtgtaca atgtgttgaa 360  
 ggcatttatg gaaatgaaca gcaccatgtt tgacgagctg acagccacat acaagtcaga 420

```

tcgtcagcgt gagaaaaaga aagaaaagga gcgtgaagaa ttgtggaaaa aattggagga 480
tctggagtta aagagaggtc ttagacgtga tggaataatt ccaacttaac aaaaacaatg 540
acaacaacat tactaacctg tggagtcaca cgtttatgta gtagaagatg gagcaacagt 600
tttctgtatt gtgcaacttt acagtagatt tcacctttgt ttcattatta cagcagcact 660
gtatatacct gtctctaagt aaaggaaaaa acaaaataag gacttcaatc caaagtttgg 720
acagtagatg gacttctcag aactttgcaa acataatcat tgttctcacc ctctttttaa 780
aaaaaaaatc ggtcttcaaa gatctgttga tgaaattgct atgttaaaat tccattatcg 840
ggagtccctt atttatcact agcagagagt atgatacaat tttcaaatgt gaacaatctt 900
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gactgtcatt tccttataag tttgtgtaac atcctcctct ggataacttg actgtaattt 1020
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gtagtccctg tactccttta gttttaaaat taggagttaa gagagaagag gtgataaaca 1200
tagtagggaa ggggaatatc gattcatgca tcagtttatg gtgaatccaa atcaatgtct 1260
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tgcatatata attgaacaca cataccagag atgttttaga aatgtgagaa aaacatcctt 1380
ttggaccatt tgaaataaga aagacaaaca ctaaacaata caaccatgaa attgatcacc 1440
gggattgcaa atctaattgg gaaaagagtt gagcaaacag cttggactgt ttggagttgt 1500
tgccttactt tttaatatgt atttataaag tattccagca aaagaggatg tagcctctgg 1560
gaaaaaacia acatgttaca gtgttttttg tagattctcg ttctatatct catcacagcg 1620
ccagccctgt ttttagccgg aaaggattca ggataaacat tattatgcat tctgaattgg 1680
atgcatattc ctaactactg tatttgttac caaaagtggg tctacaaatg ctactgaaaa 1740
aaatctggaa attcctaata tcctgagtat taataataaa gtttaaaaat gcttttatat 1800
caaaggtgca tcgtgaccaa attgttttaa aaaaaaaac aaaaaaaca aaatctaggg 1860
ctgtatttta tatatatata tatatatata tatatatata tatatatata tatatatgtc 1920
cttatnggac tctctgcttt gntattttaa taaaaaatct tacatc 1966

```

<210> 59

<211> 1611

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<400> 59

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cgcgctngtg cgaattcggc acgaggggac ttcccagagc tcacaatgga ggttgatggg 60
aaggtagagt caattatgaa gaggacagct ttggtagcca atacctccaa tatgcctgtt 120
gctgctagag aagccyctat ttatactgga atcacactgt cagagtactt ccgtgacatg 180
ggctatcatg tcagtatgat ggctgactct acctctagat gggctgaggc cttagagaaa 240
tctctggtcg tttagctgaa atgcctgcag atagtggata tccagcctat cttggtgccc 300
gtctggcctc gttttatgaa cgagcaggca gggtgaaatg tcttggaat cctgaaagag 360
aagggagtgt cagcattgta ggagcagttt ctccacctgg tgggtgatttt tctgatccag 420
ttacatctgc cactcttggt atcgttcagg tgttctgggg cttagataag aaactagctc 480
aacgtaagca tttccctct gtcaattggc tcatcagcta cagcaagtat atgcgtgcct 540
tggtatgaata ctatgacaaa cacttcacag agttcggttc tctgaggacg aaagctaagg 600
aaattctgca ggaagaagaa gacctggcag aaattgtaca gcttggtgga aaggcttctt 660
tggcagaaac agataaaatc actctggagg tagcaaaact tatcaaagat gatttcctac 720
aacaaaatgg atatactcct tatgacaggt tctgccatt ctacaagaca gtagggatgc 780

```

```

tgtccaacat gattgcattt tatgatatgg ctctgtagagt gtttgaaacc actgcccaga 840
gtgacaataa aatcacatgg tccattattc gtgagcacat gggagacatc ctctataaac 900
tttcctccat gaaattcaag gatccactga aagatggtga ggcaaagatc aaaagcgact 960
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gtgttgtgaa gggcctccct cttcctttat ctgaagtggg gaatatagta aatatacatt 1260
ctggttacac tactgtaaac ttgtatgtag ggtgatgacc ctctttgtcc taggtgtacc 1320
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tttctattgt ggtaagctca ttggcagctt agcattttgc aaaggaattg ctttgcagga 1500
aatatttaat tttcaaaaac ataatgatta atgttccaat tatgcatcac ttccccagk 1560
ataaaycagg aatgkttgtg agaaaccatt gggaactata ctctttttta a 1611

```

<210> 60

<211> 1849

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (100)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (977)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1846)

<223> n equals a,t,g, or c

<400> 60

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agacctcagt cacctattac cggttgagg aggtggcaaa gcgcaactcc ttgaaggaac 180
tgtggcttgt gatccatggg cgagtctacg atgtcaccg ctctctcaac gagcaccctg 240
gaggagaaga ggttctgctg gaacaagctg gtgtagatgc aagtgaagc tttgaagatg 300
taggacactc ttctgatgcc agagaaatgc taaagcagta ctacattggt gatatccatc 360
cgagtgcctt taaacctgaa agtggtagca aggacccttc aaaaaatgat acatgcaaaa 420
gttgctgggc atattggatt ttaccatca taggcgctgt tctcttaggt ttctgtgacc 480
gctactacac atcgaaaagc aaatcctcct gaggaggcct tgctgaagtt agaaagtgca 540
tccacttttg ggcgaaaact agagacttgc ttgggggctg cagaagtgcc ctctcctcga 600
atcctgccag ttgcattctt ccccttggga gccaaagcga ttggccagac atcacctcag 660
atctgagacc agcgtcttcc atctctcaga gccttactcc caaagtacct gctcactggt 720
ccgtgttgaa caattgccgg tgtttcctct cttcactggg ttccatgagt acccttatat 780
ttcacaactt tctgttcata agttatagtg acattgctct ttggtaaaaa tgccctgctt 840
ccaatacttt gattgcatat tagacattct taacaggggc gcagtctagt gttgaaagtt 900

```



```

ttattttttcc attttttcttt taagtaaatt ttttttaaaa aattctgatt tagggctagg 960
tgtggtggct caggccngta atcckggcac ttkgggrrgc caaggtggga agatcgsttg 1020
aggccaagag ttcaagacca gcctgggcaa catagcgaga cccctatctg tattaataaaa 1080
aaatctgatt taattctttt atttatcata aggggtttta ttcttgaagt aaaggtttgc 1140
acctattaaa cttaaaactg ccaaattgatt tttgttcttt tatgtgcgtg ataaaaatac 1200
aaagaatggt gtggccacct cctccctttc aagctagggc agcaggtagc tcttcccagc 1260
ccctgagccc agccccttcc caagtgggtgc cggacaaaaa actacatggc cctttcgtgt 1320
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aaagctttca ctttggtttg gcaccagttt ctaaccatct gttttttcta ccctagctat 1500
cttttattgg taaaatataa atgtataatt atgtttgtag agctttacca aggagtttcc 1560
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aagtgagagt tcatgacaac agaccgtttt ccatttcatc tgtattttat ctccgtgact 1740
ccaacttggt ggtttgttct gtttttccat gagaataaaa tactggcggg ttttttcaaa 1800
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaggngnga 1849

```

```

<210> 61
<211> 233
<212> DNA
<213> Homo sapiens

```

```

<400> 61
aagggtcggc ctctcaaagt gctgggatta caggcattag ccactgtgcc tggccaagaa 60
taaaaatttt ttaatcttga gaaraaacat acagktcata catataaaaa gccttgaaaa 120
tattattccc ttgactcac taattacact gctggaatat aaagaaatga tcctaaatat 180
atatgtagtt ttatggtcct aaatatgtat aaagctttat gatcactcgt gcc 233

```

```

<210> 62
<211> 2333
<212> DNA
<213> Homo sapiens

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```

<220>
<221> misc feature
<222> (3)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (7)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (14)

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2327)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2331)

<223> n equals a,t,g, or c

<400> 62

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cgncgnnccg cganccacg cgtccggtgg aagatatgtg gacttagtcc cactacaacc 60
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ggtgcaatcc agtttgtgac tcagtatcag cattcaagtg ggcagagacg catccgagtg 180
accaccattg ctaggaactg ggcagatgct caaactcaaa tccaaaacat tgctgcatct 240
tttgaccagg aggcagctgc cattcttatg gcccggttag caatatatag agcagaaaca 300
gaagaaggctc cagatgtgct taggtggctg gacagacagc tcattcgact gtgtcagaaa 360
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tatccacagt ttatgtttca tttaagaaga tcttctttcc tgcaagtttt taacaatagt 480
cctgatgaga gttcatatta tcgtcaccat tttatgcgtc aagatctgac ccagtctcta 540
attatgattc agcctatcct gtatgcgtat tcttttagtg gaccaccaga gccggttctt 600
cttgatagca gtagcattct tgcagatcgt attcttctca tggacacatt cttccagatt 660
ttgatttatc atggtgagac catagcacag tggcggaagt caggatacca ggatatgcct 720
gagtatgaaa atttccgccca ccttctgcaa gccccagtggt atgatgcaca ggaaattctt 780
cactccagat ttccaatgcc aagatacatt gacactgaac atggaggcag ccaggcccggt 840
ttcctccttt caaaagtcaa cccttcacag actcataata atatgtatgc ctgggggcag 900
gagtctggag cacctattct tacagatgat gttagttttac aagtgtttat ggatcacttg 960
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aaataaaaag tgggtgctatg atatatgctt aggaggacag ttttaatgat tgtacttgca 2160
tgaacacaat catatgatgg taaagcagaa acttaagaaa aaattgttta tgtgttatat 2220
tcaattagct taaataagtt gctttgttat attttatttg aattgaacta cgctaggcct 2280

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aaatgccaat aaaatataact tttcactggt aaaaaaaaaa aataaanacc nta 2333

<210> 63

<211> 1470

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1410)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1414)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1419)

<223> n equals a,t,g, or c

<400> 63

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ccttctacaa tggttgatc ctcttcctgg ctgtgctgc catccctgtg tgtgccgtgc 120
gaggacgcaa cgtcgagaac atgamgatct tgcgtctaata gctgctccac atcaaatacc 180
tgtacgggat ccgagtgagg gtgcgagggg ctccaccactt ccctccctcg cagccctatg 240
ttgtttgtctc caaccaccag agctctctcg atctgcttgg gatgatggag gtactgccag 300
gccgctgtgt gccattgcc aagcgcgagc tactgtgggc tggctctgcc gggctggcct 360
gctggctggc aggagtcac ttcatcgacc ggaagcgac gggggatgcc atcagtgtca 420
tgtctgaggt cggccagacc ctgctcacc aggacgtgag ggtctgggtg tttcctgagg 480
gaacgagaaa ccacaatggc tccatgctgc ccttcaaaag tggcgccctc catcttgtag 540
tgcaggccca ggttcccat gtcccatag tcatgtcctc ctaccaagac ttctactgca 600
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cccacaccta cccaccagt gggccctgaa gcagggcmaa accctcttcc ttgtctcccc 900
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ctcagcctac acaaggagg ggaacattcc atcccagtg gagtctcttc ctatgtggtc 1140
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<210> 64

<211> 939

<212> DNA  
 <213> Homo sapiens  
 <220>  
 <221> misc feature  
 <222> (3)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (4)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (11)  
 <223> n equals a,t,g, or c

<400> 64  
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 ttagctcttc ggtggttgtc acacgtccgg aggcctagcc gtcgcgtacc taggatgccg 120  
 cgtggaagcc gaagccgcac ctcccgcatg gccctccgg ccagccgggc ccctcagatg 180  
 agagctgcac ccaggccagc accagtgcgt cagccaccag cagcggcacc cccatctgca 240  
 gttggctctt ctgctgctgc gccccggcag ccagggtctga tggcccagat ggcaaccact 300  
 gcagctggcg tggctgtggg ctctgctgtg gggcacacat tgggtcacgc cattactggg 360  
 ggcttcagtg gaggaagtaa tgctgagcct gcgaggcctg acatcactta ccaggagcct 420  
 cagggaaacc agccagcaca gcagcagcag ccttgccctt atgagatcaa acagtctctg 480  
 gagtgtgccc agaaccaggg tgacatcaag ctctgtgagg gtttcaatga ggtgctgaaa 540  
 cagtgccgac ttgcaaaccg attggcctaa tgaagaagtt caacctggag agatggaaaa 600  
 tcagctctca taactaagtt aatttagtat aaaaatagaa ttgatagtga gggataaaag 660  
 tgtaaccatc agttaaacct ctctgtcat tcctagcttc cttgcttcag aattgaaatg 720  
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 <213> Homo sapiens

<220>  
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 acaagccctg aacgagcacc tcagcacgcg tagtatgtcc aggggtactc actgtccag 180  
 gcagacgtgg acgcgttcag gcagctctcg gccccgccg ctgaccccca gctcttccac 240

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gtggctcggg ggttcaggca catagaagcg ctccctgggta rccctgtgg caaaggccag 300
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<210> 66

<211> 1391

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (16)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (20)

<223> n equals a,t,g, or c

<220>  
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<220>  
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 <222> (1343)  
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<220>  
 <221> misc feature  
 <222> (1358)  
 <223> n equals a,t,g, or c

<400> 66  
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<210> 67  
 <211> 659  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (139)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (475)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (585)  
 <223> n equals a,t,g, or c

<400> 67  
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 tggattcatt tgaatgcttc cagaaaacca gagaaatcta tgganttaga gaaattatgg 600  
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<210> 68  
 <211> 2981  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (2858)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (2948)  
 <223> n equals a,t,g, or c

<400> 68  
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 tatgctttca ttctcctcct gagcactgtc gtatcctata tcatgcagag aaaagagatg 300  
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&lt;210&gt; 69

&lt;211&gt; 603

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;



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 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (590)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (595)  
 <223> n equals a,t,g, or c

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<210> 70  
 <211> 1101  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (195)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1080)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1081)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1090)  
 <223> n equals a,t,g, or c

&lt;400&gt; 70

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nctcggtcgn caagggaatt c                                     1101

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&lt;210&gt; 71

&lt;211&gt; 714

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 71

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&lt;210&gt; 72

&lt;211&gt; 2890

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (555)

&lt;223&gt; n equals a,t,g, or c

<220>  
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 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
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 <223> n equals a,t,g, or c

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<211> 2488

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (277)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (446)

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<220>

<221> misc feature

<222> (2382)

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<222> (2412)

<223> n equals a,t,g, or c

<400> 73

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<210> 74

<211> 711

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (696)

<223> n equals a,t,g, or c

<400> 74

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 <211> 906  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (1)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (4)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (362)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (889)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (894)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (897)  
 <223> n equals a,t,g, or c

<400> 75  
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<210> 76  
 <211> 271  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (36)  
 <223> n equals a,t,g, or c

<400> 76  
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 caagtgtggg tctcactctt ctagttcctg a 271

<210> 77  
 <211> 673  
 <212> DNA  
 <213> Homo sapiens

<400> 77  
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<210> 78  
 <211> 367  
 <212> DNA  
 <213> Homo sapiens

<400> 78  
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 tagcttctaa actgatacct cagtagccca tagtttaaaag gagtaaagag tacatggatg 180  
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367

&lt;210&gt; 79

&lt;211&gt; 1344

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1319)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 79

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&lt;210&gt; 80

&lt;211&gt; 3748

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 80

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tagttgatgc tatgttatgt ataacttttc taataaaagt tgtgttataa gctgtaaaaa 3720
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<210> 81

<211> 1891

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1869)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1879)

<223> n equals a,t,g, or c

<400> 81

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<210> 82

<211> 1954

<212> DNA

<213> Homo sapiens

<400> 82

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<210> 83

<211> 936

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (895)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (930)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (936)

<223> n equals a,t,g, or c

<400> 83

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<210> 84

<211> 1513

<212> DNA

<213> Homo sapiens

<400> 84

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ggggggggccc ggt 1513

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&lt;210&gt; 85

&lt;211&gt; 1298

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (3)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 85

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&lt;210&gt; 86

&lt;211&gt; 2009

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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 <223> n equals a,t,g, or c

<220>  
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 <222> (1959)  
 <223> n equals a,t,g, or c

<220>  
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 <222> (2008)  
 <223> n equals a,t,g, or c

<400> 86  
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 <212> DNA  
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<220>  
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 <223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (4296)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 88

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cccatcgacg cacatgggat gcagctgaac gggaatgccg tctgcagggt gcccatctca 2640
caagcatcct gtctcacgaa gaacaaatgt ttgttaatcg tgtgggcat gattatcagt 2700

```



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ggataggcct caatgacaag atgtttgagc atgacttccg ttggactgat ggcagcacac 2760
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aaaaaaaaan aanaaaaaaa aaaaaaaaaa aaaaangggg gg 4302

```

<210> 89

<211> 2782

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (82)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (743)

<223> n equals a,t,g, or c

<400> 89

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gaagcctggg aaacagctaa gccaatcct gctagaaggc aaaggagact ctttgatgat 180
acacgggaag cagaaaaggt gctgcactat ctggcaatcc agaaacctgc agaccttgct 240
cggcacctgt taccttgtgt gattcatgca gctgtactca aggtaaagga agaagaaagt 300
ctcgaataca tttcttcagt taagaagatc ataaagcaga taatatccca ttccagtaaa 360
gttttgcact tccccaatcc agaagacaag aaattggaag aaatcattca ccagattact 420

```

```

aatgtggaag ctctcattgc cagagctcgg tcaactaaaag ccaagtttgg aactgagaaa 480
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cctgaagtgt tagtcaccgg tgcaggaaga ggacatgctg gcaggatcat tcacaagctg 600
tttgtgaatg cccagagggtg ccagctatga ctccaccaga ggaggaattg aagagaattg 660
gctccccaga ggaaagaagg cagaactccg tgtcagactt cccacccctt gctggccggg 720
aattcatttt gsgcamcact gtncgcgccc tgcctccctac tccaaagctc tgctcagcg 780
gatgtacagt gttctcacca aagaggactt tagacttgca ggtgcctttt catcagatac 840
ttccttcttc tgattcttct agcattactc gttgggtggc tcagagacag tgctgcctcc 900
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caaggcagtg gtctcaagaa cattctttgt gcctttttta agtactccat tttattttta 2520
tgatagttat gtatttattt cacagatata ttaaagtacc cactttgtgt caggtacagt 2580
acaagcaatg aagataaaac agaaaccaa acacactccc ttacaggga aactgacacc 2640
acgttgccac aaaatgttga gtatagtcaa ctctgctgtg tggatcggag ggctgcatt 2700
taccctacaa ataattgaat gtaatcctac attcatgtat tcattggcag tacggagtaa 2760
taaatgcagc aatgccataa aa

```

&lt;210&gt; 90

&lt;211&gt; 1037

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 90

```

aattcggcac gagctgtctg cgaagtggcc cttgattaca aaaagaagaa acacacctaa 60
acactttatc tccaagttac aaaagtttga ggtgcagagg gaaggccaga tttttttttt 120
aatgaaatta tatagattag atctcagtat ttaaactgtt cctcaatttt gtgaggctgt 180
gttggaata acccgctct agtgctgttg gtatgcaagg cagcgggtgt taatcaatat 240

```

```

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ttaaacagat cgcataattat gatcttgctg cagccacagt gcagctccac attaaactta 420
cagaccaaac catttgatc tgccatcact tactaacaca cgacatgcgg cttttctgca 480
tcaactgcta tgacgggttaa gaatgtcagt atacaagaag gaatagaaaa ctgatactgt 540
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tttgagataa ttctagtaca aagtataata aaactagatg tataataaac cctttaaatc 660
attggtaagt gtacaagtgg tggaactgaa gcattttactg gacaaagtaa tgttactcta 720
atggttactt gctcgtgcgt tgccacactg tggtataatt tgcttcattt ccttgctatt 780
tgatacatag tgtgcatttc tctgtcactg taactattgt aatgacaaat tttcatctta 840
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gtggctcgtc aggcctgggtg ctcagtcgta cgacctgtac ctctcaactt ttgccctatc 960
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aacggggggg ggcccg 1037

```

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<210> 91
<211> 1052
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (76)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (962)
<223> n equals a,t,g, or c

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```

<220>
<221> misc feature
<222> (965)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (1044)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (1048)
<223> n equals a,t,g, or c

```

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<400> 91
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gatgtttctt ctccacagct gaaagatgaa aattctaagc tgagaagaaa gctgaatgag 180
gttcaragct tctytraagc wcawacagaa atgggtgagga cgcttgagcg gaagttagaa 240
gcaaaaatga atcaaggagg aaagcgacta ccacgacctg gagtcggtgg ttcagcaggt 300

```

```

ggagcagaac ctggagctga tgaccaaacg ggctgtaaag gcagaaaacc acgtcgtgaa 360
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agccctgcgg tgccggccagg gtgccagcct gaccgtggtg aagcagaacg ccgacgtggc 480
cctgcagaac ctccgggtgg tcatgaacag tgcacaggct tccatcaagc aactggtttc 540
cggagctgag aactgaatc ttgttgccga aatcctaaa tctatagaca gaatttctga 600
agttaaagac gaggaggaag actcttgagg acccctgggt gttctcagca tgaagctccg 660
tgtataccct gaggtcacca ccgctcgatc taaatgtgca gttgtgtcct taaatatgca 720
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ttggccacca caatgggagc agccctggcc cgagttgtct ctgtggtttc tatgcagccc 840
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aaaagccagt gattttaara aaaaaaaaaa aaaaagggcg ggccggtttt aaaagatccc 960
tnganggggc ccaagcttac gcgtgcattc gacgtcataa cttttttccc tataaggag 1020
cgattataag cttaggcact tggncngng tt 1052

```

<210> 92

<211> 1234

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1115)

<223> n equals a,t,g, or c

<400> 92

```

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gttctctcgc gcggtgtcgc ctgggctgtc ggctggacc ttgcagccgc aatggattca 120
agttcgaaat atggcaactt tgaaagatat caccaggaga ctaaagtcca tcaaaaacat 180
ccagaaaatt accaagtcta tgaaaatggt agcggcagca aaatatgcc gagctgagag 240
agagctgaaa ccagctcgaa tatatggatt gggatcttta gctctgtatg aaaaagctga 300
tatcaagggg cctgaagaca agaagaaaca cctccttatt ggtgtgtcct cagatcgagg 360
actgtgtggt gctattcatt cctccattgc taaacagatg aaaagcgagg ttgctacact 420
aacagcagct gggaaagaag ttatgcttgt tggaattggt gacaaaatca gaggcatact 480
ttataggact cattctgacc agtttctggt ggcattcaaa gaagtgggaa gaaagcccc 540
cacttttgga gatgcgtcag tcattgccct tgaattacta aattctggat atgaatttga 600
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aattcagcca gttgattttg tttttagctt actgctgcct ttgtccgaag aaactgttcc 1020
tccattatatt gaattactga agacagcaag atatttgtaa attatcttaa aataaacaac 1080
ttaaaataaa atcattgttt ttcttatata taagnacaat agatatagtt tttgaaatga 1140
gatgatacta aaacatttaa aaatatatt atgctactat taaaattttt tagtagaaga 1200
caaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 1234

```

<210> 93

<211> 1571

<212> DNA

<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1497)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1516)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1530)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1546)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1571)  
<223> n equals a,t,g, or c

<400> 93  
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gctttccctg ggtccggggg ctgccasgag ggascgggar gtctgtccac ctcacaaggc 120  
aggctctgtc agcttttgtc actccctgat ttcttattct ttgttacctt ttttcgcctg 180  
actgattttt acttggcatt taagtcccc ttagcactgc cagattctaa aaggttatat 240  
tctttttaa aaagaagaga aagaaagaag gaaagaagac aaagaaagaa taaaaacctc 300  
cgagtgttaa ctacttttcc ctttcttctt ttttttataa agaatacatt ctttcacatc 360  
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agcccaggag tatctgacat ggtggaatgg aatcagttag aaagcgaaga aatcactaaa 540  
aaaagttact tctttttttc cccaccagtt ataatcttca accttactag tttataacag 600  
tttaatgtcc tatagaagga tcttccacta aagttataat tttaagtata gtcatataga 660  
gagatcccta atcccctggg taatctagat actaaagggt gggaagaaca gtcatataga 720  
cattctttaa tccaaaacca ctgtttgaaa ttagtaagga tattttcagc attcccaaaa 780  
acatgttatt agcacgttga gctgaaaacg tttttcttcc tcagttagta cagaaaccaa 840  
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aaatttataa cgtcctctct tctacctcca atgaaaatgt ttccgtgtgt ggcgtctgat 960  
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gtgcgccgct agtgtgggtt tacacttatg agtgttgtca ttacatgtgt tctgctcttc 1140  
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tagtagttcc ctgtcacaaa gggatgccaa ggcttaccga tctgtctgtc aaaaccaaag 1260  
atgtctggga aatccctcga gaatccctgc agttgatcaa gagactggga aatgggcagt 1320  
ttgggggaagt atggatgggt atgctgagac tcaattactc tcttatttagc ttcccgttt 1380  
ggaagatccc aaacaccaa gatggaaggt gaaaataaag actgcgtgac cgggaagaaa 1440

```

gtttgaatta ctaatagtgg ggaataataa tttcagtttt ggttttaaac atctggnatt 1500
cctaaaaaaaa aaaaanaaaa aaaaaaaaaacn cgggggggggg cccggnaccc aattcccccc 1560
aaagggggggg n 1571

```

<210> 94

<211> 1872

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (51)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1271)

<223> n equals a,t,g, or c

<400> 94

```

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ggttttttttt tttttttttt atttaataaa gttttatttt tccaaatgta cagctggttg 120
gacctattca tgcattctca ccagcagctg gagcatctcc acccttggtg tttctggtgt 180
aaattacttg agctctgtgc tttgaaacca gtttgataag tcctttacta aggagctcct 240
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tttggccttg cccccggatt tgttcaactg gtctttgtct ttcttggccg actttccagc 360
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cggcgaagcg ctcgccctct agcctgaggc ggaagacagg aagyggattc tagttcccaa 600
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ggaaagaggt gctggagtat ctgggtaacc ctgctaatta cccgggtgtc attcgatttg 1200
gccggccccc cctcacttct aatgagaagc ttatgtctgg ctccatgttc cactcgctct 1260

```

```

ttgccatcgg ntcccagctg tctcctgaac agggaagctc aggcattgag atgctggaga 1320
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cagatcctag gcaagctgga atagattctc ttctccgaaa gatttatgag atttactcag 1440
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tgttgacact ccagtggaaa tcccagcagc cttgttagtg cacttgaaag tgggagaatg 1680
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ataccatggg cttaactttcc aactctgtac agatttatth atggaggagc taggtccata 1800
aatgttgtaa taaatattcc tttgatcttg gtgtttgcaa aaaaaaaaaa aaaaaaaact 1860
cgagactagc gg                                     1872

```

<210> 95

<211> 1516

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1505)

<223> n equals a,t,g, or c

<400> 95

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ggagggcaga aaggagaggt gctgggcggg cttagtcgga gattgaggac tgggaatccg 60
cttccgggag ggcactgtct agtgcacagg caacctggcc ttsgcctcct agcccagaaa 120
gccgaatctc cctaattcct gtgacctgtg tcacctctgc atcgcgagga gggggataag 180
tggggagaaag tctgggtgtca gatgggatgg cgccggaaga gggtgccaca gcggggacgg 240
aaggcgcccc caccccaact ccacgggaat ataaacaatt tgtattttcc gatcaggtgg 300
cgggacaggc ttcataggga cagccctaac ccagctgctg aatgccagag gccacgaagt 360
acgttggtct cccgaaagcc cgggcccggc cggatcacgt gggatgagct cgctgcatcg 420
gggctgccga gctgcgatgc cgccgtcaac ctggccggag agaacatcct caacctctc 480
cgaagatgga atgaaacctt caaaaagag gttctcggca gccgcctaga gaccacccaa 540
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<210> 96

<211> 1770

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (485)

<223> n equals a,t,g, or c

<400> 96

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ttatgcatgg catcagaaac cctgatttga gccagacgtc caaagtgaaa cctccgggtg 300
gacattcccc tcaggtgaac catctgaaaa gaccagtcag tggagtgggg gacgctccag 360
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<210> 97

<211> 938

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (183)

<223> n equals a,t,g, or c



<220>  
 <221> misc feature  
 <222> (293)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (360)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (938)  
 <223> n equals a,t,g, or c

<400> 97  
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<210> 98  
 <211> 311  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (297)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (309)  
 <223> n equals a,t,g, or c

<400> 98  
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 ccctgcccta cgcccaggca tgtgccatcc tcccgccacc cagaggtttg tgggctgagg 120

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accaactctc accgctgtct ctttcgtccc cagctccagg ccatgcccgc agccggaggt 180
gtgctctacc agccctcggg accagccagy ttccccagca ctttcagccc ygccggctcg 240
gtggagggtc ccccaatgca cggcgtgtac atgagccagc cggtccttgc cgctgggnccc 300
taccccagna t 311

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<210> 99

<211> 620

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (368)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (570)

<223> n equals a,t,g, or c

<400> 99

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ccggaggagc tggcagccct ctttgcgccc tacggcacgg tcatgagctg cgccgtcatg 180
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cgtttgttca matggagaag gaagcagatg ccaaagccgc aatcgcgag ttcaacggca 480
aagaagtgaa gggcaagcgc atcaacgtgg aatctycacc aagggtcaga agaagggggc 540
tggcctggct gtccagtctt gggacaagan caagaaacca agggctgggg ataggccttc 600
cctggaatgg tggttttctg 620

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<210> 100

<211> 2511

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (12)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (28)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (44)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2456)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2488)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2511)

<223> n equals a,t,g, or c

<400> 100

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<210> 101

<211> 2981

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (293)

<223> n equals a,t,g, or c

<400> 101

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&lt;210&gt; 102

&lt;211&gt; 2804

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 102

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&lt;210&gt; 103

&lt;211&gt; 722

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 103

```

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aggcgagagg aaggacggcc aggggtgacac ggaagcatgc gacggctgct gatccctctg 120
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aa 722

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&lt;210&gt; 104

&lt;211&gt; 1636

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 104

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```

&lt;210&gt; 105

&lt;211&gt; 1561

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 105

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tccccttaaa aaagcaaagg agtctaaaaa gcatgaaaag cttgagaaac cagagaagga 240
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t						1561

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<210> 106
<211> 486
<212> DNA
<213> Homo sapiens
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<400>	106						
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agtggccagt	actatgatta	tgattttccc	ctatcaattt	atgggcaatc	atcaccaaac	180	
tgtgcaccag	aatgtaactg	ccctgaaagc	tacccaagtg	ccatgtactg	tgatgagctg	240	
aaattgaaaa	gtgtaccaat	ggtgcctcct	ggaatcaagt	atctttacct	taggaataac	300	
cagattgacc	atattgatga	aaaggccttt	gagaatgtaa	ctgatctgca	gtggctcatt	360	
ctagatcaca	accttctaga	aaactccaag	ataaaaagga	gagttttctc	taaattgaaa	420	
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<210> 107
<211> 800
<212> DNA
<213> Homo sapiens
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<400>	107						
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acattgaatt	acactattgt	actggagctt	atcggatttc	acctgtagat	gtaaatagta	300	
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tggaacgagc	aaaagatcag	ttagaaaaac	atacccgtta	ctggcctatg	gatcatttca	660	
caaaccacca	tttttaacak	gcaagcggt	gttccattag	ccagtgttat	tgtggaaaga	720	
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<210>	108
<211>	1058
<212>	DNA



<213> Homo sapiens

<220>

<221> misc feature

<222> (895)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1019)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1054)

<223> n equals a,t,g, or c

<400> 108

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<210> 109

<211> 1076

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (780)

<223> n equals a,t,g, or c

<400> 109

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gaggatgcag gtctgtctgc tatcagctat gccgctgccc gttgcgctgc agaccgctt 180

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ggccaagaga ggcacccctca aacatctgga gcctgaacca gaggaagaga tcattgccga 240
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ctggtacaag gtgttcgacc ctccctgctg gctcccttac tactggaatg cagacacaga 360
ccttgatcc tggctctccc cacatgaccc caactccgtg gttaccaaata cggccaagaa 420
gctcagaagc agtaatgcag atgctgaaga aaagtggac cggagccatg acaagtcgga 480
cagggggccat gacaagtcgg accgcagcca tgagaaacta gacagggggc acgacaagtc 540
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```

<210> 110

<211> 1199

<212> DNA

<213> Homo sapiens

<400> 110

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<210> 111

<211> 3630

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3606)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3608)

<223> n equals a,t,g, or c

<400> 111

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tttgtttaaa cagctaagtt acttgattaa aataatgata aaattgtaaa aaaaaaaaaa 3600
aaaaantnct gsggtccgct aagggaattc 3630

```

<210> 112

<211> 1526

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1496)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1511)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1512)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1515)

<223> n equals a,t,g, or c

<400> 112

```

tcgaccacg cgtccgcagc aggccctgcg cgcggaaca tggcggggtc cagggtggagg 60
tcttgaggct atcagatcgg tatggcattg gcgtccgggc ccgcaaggcg ggcgctagct 120
ggctccgggc agctcggcct tgggggcttc ggggccccga gacgcggggc gtatgagtgg 180
ggcgtgcgct ccacgcggaa gtcggagcct cctccccctg atagggtgta cgagatccct 240
ggactggagc ccatcacctt tgcggggaag atgcacttcg tgccctggct ggcgcggccg 300
atctttccgc cctgggaccg cggctacaag gacccaagg tctaccgctc gccccctctt 360

```

```

cacgagcatc cgctgtacaa agaccaggcc tgctatatct ttcaccaccg ttgccgcctt 420
ctcgaggggtg taaagcaggc cctctggctc accaagacca agttaataga aggccttccc 480
gagaaagtgc ttagccttgt tgatgatcca aggaaccaca tagagaacca agacgagtgc 540
gttctgaatg tgatctctca cgcccgtctc tggcagacca ctgaggaaat cccaagaga 600
gagacctact gcccggtcac cgtggacaac ctaatacagc tgtgtaaata tcagattctc 660
aagcatcctt ctctggccag gaggatctgt gtccaaaact ccacgttttc tgctacctgg 720
aaccgagagt ctcttctcct tcaagtccgt gggtctgggt gagcccgact gagcactaag 780
gatcctctgc ccaccatcgc ctccagagag gagattgaag ctactaagaa tcatgttcta 840
gagaccttct accccatata acccatcatc gatcttcatg aatgcaatat ttatgatgtg 900
aaaaatgaca caggattcca ggaaggctat ccttaccctt atccccatac cctgtactta 960
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gcctgggtgg actcagacca gctcctctat cagcattttt ggtgtctccc agtgatcaaa 1260
aagagagtgg ttgtggaacc tgttggccca gttggtttca agccagagac attcagaaag 1320
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ccctcttgcc tctcttccac ggaagaggcc tgggccccgt ggagcctcag tgcccgtttg 1440
gcctgctgct ctcgctgaca ataaagagcc cttgcgttgc aaaaaaaaaa aaaaangggg 1500
ggccgctcaa nnggncccaa gttagt 1526

```

<210> 113

<211> 585

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (422)

<223> n equals a,t,g, or c

<400> 113

```

tcgacccacg cgtccgcca cgcgctccgc cacgcgtccg ggagcccggg gacaggatgt 60
tgggtgttgg attaggagat ctgcacatcc cacaccgggt caacagtttg ccagctaaat 120
tcaaaaaact cctggtgcca ggaataatc agcacattct ctgcacagga aacctttgca 180
ccaaagagag ttatgactat ctcaagactc tggctggtga tgttcatatt gtgagaggag 240
acttcgatga gaatctgaat tatccagaac agaaagttgt gactgttgga cagttcaaaa 300
ttgggtctgat ccatggacat caagttattc catggggaga tatggccagc ttagccctgt 360
tgacagaggc atttgatgtg gacattctta tctygggaca cacacacaaa tttgaagcat 420
tngagcatga aaataaattc tacattaatc caggttctgc cactggggca tataatgcct 480
tggaacacaa cattattyca tcattgtgtt gatggatata caggcttcta cagtggkcac 540
ctatgtgtaa tcagctaatt ggagatgaag tgaaagtaga acgga 585

```

<210> 114

<211> 501

<212> DNA

<213> Homo sapiens

<400> 114

```

gatgaaaaga aggtttttgc tcttcaaatg cttaagtaaa ctaaaaggca gagctggaaa 60
taaagcccgt attgtggact ccaagtaatg ctctttctgc tacaccatac tttgtggtgt 120

```

```

ctgctcccat gtgcttcttc gctaaggctg atcaaaaaag ttagtaggtt gcttcagcta 180
taagaatttg atggtcttcc ttagtcatca tagtctgcag caatcatttt tgttcatcat 240
tgggatgtct gcttactcct gttgagtaaa tgtgatctat tcacccttgg ragctccttg 300
cacaccaaca gtattcttgg atagggacaa gtgtgtgcta agtcagtgc gatttcttta 360
gcataataaa aggcctccatg taggatgcta atacttgagt gaaatatgct tcataagcag 420
ccttgttttg acagagttgg tgtaaagtga gggtatgtct tggcctgagc gtcttcaaag 480
catgtgccac tttgtgcac t 501

```

<210> 115

<211> 1965

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (338)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (343)

<223> n equals a,t,g, or c

<400> 115

```

agaggcggca ctggcggcaa gagcagacgc ccgaaccgag cgagaagagc ggcagagcct 60
tatccccctga agccggggccc cgcgtcccag mcctggccca aaggcaggag cagcagacaa 120
gagtgcagtg gtggctgccc ccgcaccagc ctcagtggca gatgacacac cccccccga 180
gcgtcggaac aagagcggta tcatcagtga gccctcaac aagagcctgc gccgtcccg 240
cccgtctcc cactactctt cttttggcag cagtgggtgt agtggcgggt gcagcatgat 300
gggcggagag tctgctgaca aggccactgc ggctgcanc tgnccctccct gttggccaat 360
gggcatgacc tggcggcggc catggcgggt gacaaaagca accctacct aaagcacaaa 420
agtgggtgct tggccagcct gctgagcaag gcagagcggg ccacggagct ggcagccgag 480
ggacagctga cgctgcagca gtttgcgcag tccacagaga tgctgaagcg cgtgggtgcag 540
gagcatctcc cgctgatgag cgaggcgggt gctggcctgc ctgacatgga ggctgtggca 600
ggtgccgaag cctcaatgg ccagtcgcac ttcccctacc tgggcgcttt ccccatcaac 660
ccaggcctct tcattatgac cccggcaggt gtgttcctgg ccgagagcgc gctgcacatg 720
gcgggccttg ctgagtacc catgcaggga gagctggcct ctgccatcag ctccggcaag 780
aagaagcggg aacgctgcgg catgtgcgcg ccctgccggc ggcgcacaa ctgcgagcag 840
tgcagcagtt gtaggaatcg aaagactggc catcagattt gcaaattcag aaaatgtgag 900
gaactcaaaa agaagccttc cgctgctctg gagaagggtg tgcttccgac gggagccgcc 960
ttccggtggt ttcagtgcag gcggcggaac ccaaagctgc cctctccgtg caatgtcact 1020
gctcgtgtgg tctccagcaa gggattcggg cgaagacaaa cggatgcacc cgtctttaga 1080
acaaaaaata ttctctcaca gatttcattc ctgtttttat atatataatt tttgtgtcg 1140
ttttaacatc tccacgtccc tagcataaaa agaaaaagaa aaaaatttaa actgcttttt 1200
cggaagaaca acaacaaaaa agaggtaaa acgaatctat aaagtaccga gacttccttg 1260
gcaaagaatg gacaatcagt ttcttccctg tgtcgatgtc gatgttgtct gtgcaggaga 1320
tgcagttttt gtgtagagaa tgtaaatttt ctgtaacctt ttgaaatcta gttactaata 1380
agcactactg taatttagca cagttaact ccaccctcat ttaaacttcc tttgattctt 1440
tccgaccatg aaatagtgc tagtttgcc ggagaatcca ctcacgttca taaagagaat 1500
gttgatggcg ccgtgtagaa gccgctctgt atccatccac gcgtgcagag ctgccagcag 1560
ggagctcaca gaaggggagg gagcaccagg ccagctgagc tgcaccaca gtcccagac 1620

```

```

tgggatcccc caccccaaca gtgatttttg aaaaaaaaaat gaaagtctctg ttcgtttatc 1680
cattgcgatac tggggagccc catctcgata ttccaatcc tggctacttt tcttagagaa 1740
aataagtcct ttttttctgg ccttgctaata ggcaacagaa gaaagggtt ctttgctgg 1800
tcccctgctg gtgggggttg tcccagggg cccctgctg ctgggcccc ctsccacggc 1860
cagcttcctg ctgatgaaca tgctgtttgt attgttttag gaaaccaggc tgttttgtga 1920
ataaaacgaa tgcatgtttg tgtcacgaar maaaaaaaaa aaaaa 1965

```

<210> 116

<211> 1060

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (299)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1060)

<223> n equals a,t,g, or c

<400> 116

```

gaaacacata cattggatat gggaagatgg cggtgtgtgc ggtgtatgct ccaccagttg 60
gaggcttctc ttttgataac tgccgcagaa tgccgtcttg gaagccgatt ttgcaaagag 120
gggatacaag cttccaaagg yccggaanaac tggcacgacc atcgctgggg tggctataaa 180
ggatggcata gttcttgagg cagatacaag agcaactgaa gggatgggtt ttgctgacaa 240
gaactgttca aaaatacact tcatatctcc taatatattat tggttggttg ctgggacanc 300
tgcagacaca gacatgacaa cccagctcat ttcttccaac ctggagctcc actccctctc 360
cactggccgt cttcccagag ttgtgacagc caatcggatg ctgaagcaga tgcttttcag 420
gtatcaaggt tacattgggt cagccctagt tttaggggga gtagatgtta ctggacctca 480
cctctacagc atctatcttc atggatcaac tgataagttg ccttatgtca ccatgggttc 540
tggctccttg gcagcaatgg ctgtatttga agataagttt aggccagaca tggaggagga 600
ggaagccaag aatctgggtg gcgaagccat cgcagctggc atcttcaacg acctgggctc 660
cggaagcaac attgacctct gcgtcatcag caagaacaag ctggattttc tccgcccata 720
cacagtggcc aacaagaagg ggaccaggct tggccggtac aggtgtgaga aagggactac 780
tgcagtcctc actgagaaaa tcaactcctc ggagattgag gtgctggaag aaacagtcca 840
aacaatggac acttcctgaa tggcatcagt ggggtggctgg ccgcggttct ggaaggtggt 900
gagcattgag gccagtaag acactcatgt ggctagtgtt tgccgaatga aactcaactc 960
aataaaaaac aaaaaccaa ttgggcagct gaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1060

```

<210> 117

<211> 709

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (174)

<223> n equals a,t,g, or c

&lt;400&gt; 117

```

aattcggcac gagaacatcc attctaaagg gctactgtcc caaatcctgt gtgtcctttt 60
gacttgctctg atcacccaat ggaagtggat acttgtaaag tctacaccac tgtacttggc 120
gttaaattctt gctgaattcg tggtaagctg ttacatgtc tacattttgt agantgattt 180
tgggtctgcag caaaattoga tttcacttct cataccctt tccttccact tgaaatgcaa 240
tttagacaga ggccctgtgg tgaaagtgc aatattaagt ttmcctttag aagatcccyt 300
cctcaaacct cagaaccct agcagtgtta ccctwaaaca aaaatgagct cgagaaaaaa 360
gtagctcagt tacagagaag caaatcgagt tatttcccca cataaaaagt ttcccagat 420
tctaagaatt gcagtatcct gtaccctaaa atttttcaag gtgactcctg ttgtcgtctg 480
ttgataactt taataaaggc catttaagga cataagtttt taaagactcc caaagtgaaa 540
cttaaacatt ttcgggatta tcgattgcat atatcagttt atgctgtgtg ctgaattact 600
atgccatgtg ctatttttagt gtttggggaa aatgaaaaat aaaatttggt ctttagctta 660
ataaatatgt cttattttta aaaaaaaaaa aaaaaactcg agactagct 709

```

&lt;210&gt; 118

&lt;211&gt; 2053

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (813)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2049)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 118

```

ctccttggcg cctgtcccca cgcccccg agcgtgacca cgatgctccc catacccac 60
ccattcccga tacaccttac ttactgtgtg ttggcccagc cagagtgagg aaggagtgtg 120
gccacattgg agatggcggg actgagcaga catgccccca cgagtagcct gactccctgg 180
tgtgtcctcg gaaggaagat cttggggacc cccccaccgg agcacacca rggatcatct 240
ttgccgtct cctggggacc cccaagaaa tgtggagtcc tcggggggccg tgcactgatg 300
cggggagtgt gggaagtctg gcggttggar ggggtgggtg ggggcagtgg gggctgggcg 360
gggggagttc tggggtagga agtggccccg ggagattttg gatggaaaag tcaggaggat 420
tgacagcaga cttgcagaat tacatagaga aattaggaac ccccaaattt catgtcaatt 480
gatctattcc ccctctttgt ttcttggggc atttttcctt tttttttttt ttttgttttt 540
tttttaccct tccttagctt tatgcgctca gaaaccaa ataaaccccc ccccatgtaa 600
caggggggca gtgacaaaag caagaacgca cgaagccagc ctggagacca ccacgtcctg 660
cccccgcca tttatcgccc tgattggatt ttgtttttca tctgtccctg ttgcttgggt 720
tgagttgagg gtggagcctc ctggggggca ctggccactg agcccccttg gagaagtcag 780
aggggagtgg agaaggccac tgtccggcct ggnttctggg gacagtggct ggtccccaga 840
agtcctgagg gcggaggggg ggggtgggca ggggtctctc aggtgtcagg aggggtctcg 900
gaggccacag gagggggctc ctggctggcc tgaggctggc cggaggggaa ggggctagca 960
ggtgtgtaaa cagagggttc catcaggctg gggcagggtg gccgccttcc gcacacttga 1020
ggaaccctcc cctctccctc ggtgacatct tgcccggccc tcagcaccct gccttgtctc 1080
caggaggtcc gaagctctgt gggacctctt gggggcaagg tggggtgagg ccggggagta 1140
gggaggtcag gcgggtctga gccacagag caggagagct gccaggtctg cccatcgacc 1200

```



```

aggttgcttg ggccccggag cccacgggtc tggatgatgcc atagcagcca ccaccgcggc 1260
gcctagggct gcggcagggg ctcggcctct gggaggttta cctcgcccc acttgtgccc 1320
ccagctcagc cccctgcac gcagcccgac tagcagtcta gaggcctgag gcttctgggt 1380
cctggtgacg gggctggcat gaccccgggg gtcgtccatg ccagtccgcc tcagtgcag 1440
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gagccaaatt gtcacaattg tggaaaccac attggcctga gatccaaaac gcttcgaggc 1560
accccaaat acctgcccac tcgtcaggac accacccac ccagtgttat attctgcctc 1620
gccggagtgg gtgttcccgg gggcacttgc cgaccagccc cttgcgtccc caggtttgca 1680
gctctccctt gggccactaa ccatcctggc ccgggctgcc tgtctgacct ccgtgcctag 1740
tcgtggctct ccatcttgtc tcctccccgt gtcccaatg tcttcagtgg ggggccccct 1800
cttgggtccc ctctctgcc atcacctgaa gacccccacg ccaaacactg aatgtcacct 1860
gtgcctgccg cctcggtcca cttggggccc gtgtttgact caactcagct cctttaacgc 1920
taatatattc ggcaaaatcc catgcttggg ttttgtctt aaccttgtaa cgcttgcaat 1980
cccaataaag cattaaaagt catraaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2040
ggggggggnc cgg                                     2053

```

<210> 119

<211> 1824

<212> DNA

<213> Homo sapiens

<400> 119

```

agttcctagc aagctgttca caagattgcc tgataagaat atggaagctg tatataaagt 60
caacatcttt agaaactcag gatgacgata acataagact gaaggaaaat acttttacca 120
tagaaaatga aaagtgttaa aatagcattt gctgttactc tggagacagt gctagccggt 180
catgaaaact gggtaaattgc agttcactgg caacctgtgt ttacaaaaga tgggtgtccta 240
cagcagccag tgagattatt atctgcttcc atggataaaa ccatgattct ctgggctcca 300
gatgaagagt caggagtttg gctagaacag gtcgagtag gtgaagtagg tgggaataact 360
ttgggatttt atgattgcca gttcaatgaa gatggctcca tgatcattgc tcatgctttc 420
cacggagcgt tgcacctttg gaaacagaat acagttaacc caagagagtg gactccagag 480
attgtcattt caggacactt tgatgggtgc caagacctag tctgggatcc agaaggagaa 540
tttattatca ctgttggtac tgatcagaca actagacttt ttgctccatg gaagagaaaa 600
gaccaatcac aggtgacttg gcatgaaatt gcaaggcctc agatacatgg gtatgacctg 660
aaatgttttg caatgattaa tcggtttcag tttgtatctg gagcagatga aaaagttctt 720
cgggtttttt ctgcacctcg gaattttgtg gaaaattttt gtgccattac aggacaatca 780
ctgaatcatg tgctctgtaa tcaagatagt gatcttccag aaggagccac tgtccctgca 840
ttgggattat caaataaagc tgtctttcag ggagatatag cttctcagcc ttctgatgaa 900
gaggagctgt taactagtac tggttttgag tatcagcagg tggcctttca gccctccata 960
cttactgagc ctccactga ggatcatctt ctgcagaata ctttgtggcc tgaagttcaa 1020
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cttgcctcag cttgtaaggc agctaagaaa gagcatgcag ctatcattct ttggaacact 1140
acatcttgga aacagggtgca gaatttagtt ttccacagtt tgacagtcac gcagatggcc 1200
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aacaaaatta cttctgtgca cagtagaatt atttgggtctt gtgattggag tcctgacagc 1380
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gctgtgacag ctgtcagcgt ctgcccagtg ctccaccctt ctcaacgata cgtgggtgca 1560
gtaggatttg agtgtggaaa gatttgctta tatacctgga aaaagactga tcaagttcca 1620
gaaataaatg actggaccca ctgtgtagaa acaagtcaaa gccaaagtca tacactggct 1680
atcagaaaat tatgctggaa gaattgcagt ggaaaaactg aacagaagga agcagaaggt 1740

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gctgagtggg tacactttgc aagctgtggg gaagatcaca ctgtgaagat acacagagtc 1800  
 aataaatgtg cactgtaatg gaaa 1824

<210> 120

<211> 606

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (144)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (155)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (598)

<223> n equals a,t,g, or c

<400> 120

aggaagctgg gggaccattt tgcaccatga gtttgtgaaa aatctggatt aaaaaattac 60  
 tcttccagtg ttttctcatg cmaaatttgc tyctarcatg tgataatgag taaactaaaa 120  
 ctatttgcag cttttcctca attnacattt tggtngtata cttcagagtg atgttatcta 180  
 agtttaagta gtttaagtat gttaaagtgt gatcttttac accacatcac agtgaacaca 240  
 ctggggagat gtgctttttt ggaaaactca aagggtgctag ctccctgatt caaagaaata 300  
 tttctcatgt ttgttcattc tagtttatat tttcatttaa aatccttttag gtttaagtta 360  
 agcttttttaa aagttagtta aaagaattga gacacaatac taatactgta ggaattgggtg 420  
 aggccttgac ttaaaacttt ctttgtactg tgatttcctt ttgggtgtat tttgctaagt 480  
 gaaacttggt aaattttttg ttaactaaat ttttttctta aaataaagac tttttcacia 540  
 wraaaaaaaa aaaaaaaaaa actcgagggg gggcccgtac ccaatcgctt gtgatgtntc 600  
 gtatac 606

<210> 121

<211> 838

<212> DNA

<213> Homo sapiens

<400> 121

gaatcccggg tgcacccacg cgtccgggaa agatcgggcg gcaccgcagg agcaacgggtt 60  
 ggtcctgcgg ctgtgatgtc ggtgttgagg cccctggaca agctgcccgg cctgaacacg 120  
 gccaccatct tgctgggtgg cagcgaggat gctcttctgc agcagctggc ggactcgatg 180  
 ctcaaagagg actgcgcctc cgagctgaag gtccacttgg caaagtccct ccctttgccc 240  
 tccagtgtga atcgccccg aattgacctg atcgtgtttg tgggttaatc tcacagcaaa 300  
 tacagyctcc agaacacaga ggagtccttg cgccatgtgg atgccagctt cttcttgggg 360  
 aargtgtgtt tcctcgccac aggtgggtgg rggttttagg gccaccatgg cgcacgcctt 420  
 ggtgcgcgtg ctgcagatct gtgctggcca cgtgcccggg gtctcagctc tgaacctgct 480  
 gtccctgctg agaagctctg agggcccctc cctggaggac ctgtgagggg ggctkgcccc 540

```

tgggctgccc cttctcatgg cttcgtgctg actccataaa cattctctgt tgaggatgtc 600
cagtcagggc ttgacaggcc caggctcagc cccccgtggc tgggaagggt ccctgcagtg 660
ccagtgtctg agcaggggaga gctgggcaga agcagcgagg gggcccagct ggcgagactg 720
tagccccctc cactccac actcactctt gcagagcctg tgtctttaag cagctggcgt 780
gttacatctc catttaaggt ttcccttgaa caaaagggtc gtggctaaaa aaagttta 838

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<210> 122

<211> 656

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (41)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (218)

<223> n equals a,t,g, or c

<400> 122

```

ggcacgagcg ctcttgctgc gacgcacggt cggaagcggg ncaagggtcga ggccggggttg 60
gcgccggagc cggggccgct tggagctcgt gtgggggtctc cgggtccaggg cgccggcatgg 120
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cacaggaggg aaagctcttc cagctctacc ccaggaactt cctgcgctag ctgggcgggg 540
gaggggcggc ctgccctcat ctcatctcta ttaaacgcct ttgccagcta aaaaaaaaaa 600
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaagggggggg gggcggacgc gtgggc 656

```

<210> 123

<211> 1386

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (8)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1283)

<223> n equals a,t,g, or c

<400> 123

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aaccgggnaa aaggaaaccg tgttgtgtac gtaagattca ggaaacgaaa ccaggagccg 60

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cgggtgttg  cgcaaagggt  actcccagac  ccttttccgg  ctgacttctg  agaaggttgc  120
gcacagctgt  gcccggcagt  ctagaggcgc  agaagaggaa  gccatcgcc  ggccccggct  180
ctctggacct  tgtctcgctc  gggagcgga  acagcggcag  ccagagaact  gttttaatca  240
tggacaaaca  aaactcacag  atgaatgctt  ctcaccggga  aacaaacttg  ccagttgggt  300
atcctcctca  gtatccaccg  acagcattcc  aaggacctcc  aggatatagt  ggctaccctg  360
ggccccaggt  cagctaccca  cccccaccag  cgggccattc  aggtcctggc  ccagctggct  420
ttcctgtccc  aaatcagcca  gtgtataatc  agccagtata  taatcagcca  gttggagctg  480
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ataccygtat  grattaagcy  gtnaaggcct  gtagctctgg  ttgtatactt  ttgcytttcm  1320
aattawagtt  takcttctgt  ataactgatt  tataaagggt  tttgtacatt  ttttaatact  1380
cattgg  1386

```

&lt;210&gt; 124

&lt;211&gt; 845

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (823)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (825)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 124

```

ggcagagggt  cacaccggga  agcaggggcc  cgaggcggag  ccggccgcga  tgagcgggga  60
gccggggcag  acgtccgtag  cgccccctcc  cgaggagggtc  gagccgggca  gtgggggtccg  120
catcgtgggtg  gagtactgtg  aaccctgcgg  cttcgaggcg  acctacctgg  agctggccag  180
tgctgtgaag  gagcagtatc  cgggcacgga  gatcgagtcg  cgctcgggg  gcacaggtgc  240
ctttgagata  gagataaatg  gacagctggt  gttctccaag  ctggagaatg  ggggctttcc  300
ctatgagaaa  gatctcattg  aggccatccg  aagagccagt  aatggagaaa  ccctagaaaa  360
gatcaccaac  agccgtcctc  cctgcgtcat  cctgtgactg  cacaggactc  tgggttcctg  420
ctctgttctg  ggggtccaaac  cttggtctcc  ctttggtcct  gctgggagct  cccctgcct  480
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aaagaaggaa  tagaagattc  cgtggccttg  ggggcaggag  agagacactc  tccatgaaca  600
cttctccagc  cacctcatat  ccccttccca  gggtaagtgc  ccacgaaagc  ccagtccact  660

```

```

cttcgcctcg gtaatacctg tctgatgcc cagatTTTTat ttatttctccc ctaaccacagg 720
gcaatgtcag ctattggcag taaagtggcg ctacaaacac taaaaaaaaa aaaaaaaaaa 780
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa atntnngggg ggggcccccc 840
cccccc 845

```

&lt;210&gt; 125

&lt;211&gt; 1656

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 125

```

ctccactcc tgctcgcac tccctttctc catccttgcc cgcctcccc cagagtcctc 60
ctcaccgccc ggactctcca ctgttcaact cgagatgcag ctctccactc cagctcaatc 120
tgctgcagct ggaggagctc ccccgctgctg agggggctgc tgttgacagga ggccctggga 180
gcagtgcgag gccccacact cccartgcgg aggctgctga gccagaggcc agactggcgg 240
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tgctgcaaga rgactcgcgc tccggcacag gctccgcagc ctccggctcc ttgggctctg 360
gcttgggctc tgggtctggt tcaggctccc atgaaggggg cagcacctca gccagcatca 420
ctcgcagcag ccagagcagc cacacaagca aatactttgg cagcatcgac tcttccgagg 480
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tccaggatcc catttggtctg ctcatggcca atgctgacca gcgcgtcatg atgacctacc 600
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tgcagaagca gcagcctcgg ttttctgagg accagcggcg ggaactgggt gctgtgcact 720
cctgggtccg gaagggccaa ctgcctcggg ctcttgatgt gatggcctgt gtggactgtg 780
ggagcagcac ccaagatcct ggtcaccctg atgacctact cttctcagag ctggatggac 840
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ctctgccgat ggcatttctg tttttgatat ttgtgtctgt tactactttt ttaatacaaa 1620
aagataaaaa cgcccaaaaa aaaaaaaaaa aaaacc 1656

```

&lt;210&gt; 126

&lt;211&gt; 837

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 126

```

tggaagttgg ccctgtttgc tttttataaa ccaaactcta tctgaaatcc caacaaaaaa 60
aatttaactc catatgtgtt cctcttggtc taatcttgct aaccagtgc agtgaccgac 120
aaaattccag ttattttattt ccaaaatggt tggaacagat ataatttgac aaagaaaaat 180
gatacttctc tttttttgct gttccaccaa atacaattca aatgcttttt gttttatttt 240
tttaccaatt ccaatttcaa aatgtctcaa tggtgtctata ataaataaac ttcaacactc 300

```

```
tttatgataa caacactgtg ttatatctct tgaatcctag cccatctgca gagcaatgac 360
tgtgctcacc agtaaaagat aacctttctt tctgaaatag tcaaatacga aattagaaaa 420
gccctcccta ttttaactac ctcaactggg cagaaacaca gattgtattc tatgagtccc 480
agaagatgaa aaaaatttta tacgttgata aaacttataa atttcattga ttaatctcct 540
ggaagattgg tttaaaaaga aaagtgtaat gcaagaattt aaagaaatat ttttaaagcc 600
acaattatth taatatggga tatcaactgc ttgtaaagggt gctcctcttt tttcttgtca 660
ttgctgggtca agattactaa tatgtgggaa ggctttaaaag acgcatgtta tgggtgcta 720
gtactttcac ttttaaactc tagatcagaa ttgttgactt gcattcagaa cataaatgca 780
caaaatctgt acatgtctcc catcagaaag attcattggc atgccacagg ggattct 837
```

<210> 127

<211> 1217

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1168)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1169)

<223> n equals a,t,g, or c

<400> 127

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gtacgccgag gctgcgggac cggrcctggc tgacttaatc ttcgttcccc acacatttgt 120
ttccgcagtt cgaagcccag ttggggccgac cagggtggagg aggaggggga ggacgacaaa 180
tgtgtcacca gcgagctcct caaggggatc cctctggcca cagggtgacac cagcccagag 240
ccagagctac tgccggggagc tccactgccg cctcccaagg aggtcatcaa cggaaacata 300
aagacagtga cagagtacaa gatagatgag gatggcaaga agttcaagat tgtccgcacc 360
ttcaggattg agaccgggaa ggcttcaaag gctgtcgcaa ggaggaagaa ctggaagaag 420
ttcgggaact cagagtttga ccccccgga cccaatgtgg ccaccaccac tgtcagtgc 480
gatgtctcta tgacgttcat caccagcaaa gaggacctga actgccagga ggaggaggac 540
cctatgaaca aactcaaggg ccagaagatc gtgtcctgcc gcactctgca gggcgaccac 600
tggaccaccc gctgccccta caaggatacg ctggggccca tgcagaagga gctggccgag 660
cagctggggc tgtctactgg cgagaaggag aagctgccgg gagagctaga gccggtgcag 720
gccacgcaga acaagacagg gaagtatgtg ccgccgagcc tgcgcgacgg ggccagccgc 780
cgcggggagt ccatgcagcc caaccgcaga gccgacgaca acgccaccat ccgtgtcacc 840
aacttgtcag aggacacgcg tgagaccgac ctgcaggagc tcttccggcc tttcggctcc 900
atctcccgca tctacctggc taaggacaag accactggcc aatccaaggg ctttgccttc 960
atcagcttcc accgcgcgga ggatgctgcg cgtgccattg ccggggtgtc cggctttggc 1020
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cactgtgtac tcggtccggg acccttggcg acagaagaca gcctccgaga gcgcgggctc 1140
caagggcaat aaagcagctc cactctcnna aaaaaaaaaa aaaaaaaaaa ggcggccgct 1200
cgcgatctag aactagc 1217
```

<210> 128

<211> 1349

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (57)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1133)

<223> n equals a,t,g, or c

<400> 128

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tggacgcgtg ggtggcggcc ggaggaggag taggtgcggg tgaagatggc ggcagcngag 60
gccgcgaact gcatcatgga ggtgtcctgt ggccaggcgg aaagcagtga gaagcccaac 120
gctgaggaca tgacatccaa agattactac tttgactcct acgcacactt tggcatccac 180
gaggagatgc tgaaggacga ggtgcgccacc ctcacttacc gcaactccat gtttcataac 240
cggcacctct tcaaggacaa ggtggtgctg gacgtcggct cgggcaccgg catcctctgc 300
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gattatgcgg tgaagatcgt caaagccaac aagttagacc acgtggtgac catcatcaag 420
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gaggaccggc agtacaaga ctacaagatc cactggtggg agaacgtgta tggcttcgac 660
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cagctggtca ccaacgcctg cctcataaag gaggtggaca tctataccgt caaggtggaa 780
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa

```

<210> 129

<211> 2318

<212> DNA

<213> Homo sapiens

<400> 129

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tgcgcacgga cgtgctcgag tttcctctgc tctccgctct cggccgctag ctctcctccc 60
ttccgctcct gcttctctcc ggttctcccg ctccagctcc agccccaccc ggccgggtccc 120
gcacggctcc gggtagccat ggaggacccc acgctctata ttgtcgagcg gccgcttccc 180
gggtaccccc acgcccaggc cccggagcct tcctccgctg gggctcaggc agcggaggag 240
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ctggaggagc ggcaggcggg gatggagggc gcagtgcaga gcatccagg cgagctgagc 420
aagctgggca aggcgcacgc accacgagca atacggtgag caagctgctg gagaaggtgc 480

```

```

gcaaggctcag cgtcaacgtg aagaccgtgc gcggcagcct ggagcgccag gcggggcaga 540
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tctaccagga tgaagtgaag ctgccggcca aactgagcat cagcaaactg ctgaaagagt 660
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ctctactaag cgaaaaccca tctctactaa aattacaaaa attagctggg catggttgcg 2220
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```

<210> 130

<211> 2149

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (787)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (819)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1518)

<223> n equals a,t,g, or c



<220>  
<221> misc feature  
<222> (2116)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (2147)  
<223> n equals a,t,g, or c

<400> 130  
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ccacgcgtcc ggagaaggca gacgcattccc gaactcgctg gaggacaagg ctcagctctt 120  
gccaggccaa attgagacat gtctgacaca agcgagagtg gtgcaggctc aactcgcttc 180  
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aagattccca tcaagcgctc ggacatgctg aaggacatca tcaaagaata cactgatgtg 1080  
taccgccaaa tcattgaacg agcaggctat tcyttggaga aggtatttgg gattcaattg 1140  
aaggaaattg ataagaatga ccacttgtac attcttctca gcaccttaga gcccactgat 1200  
gcaggcatac tgggaacgac taaggactca cccaagctgg gtctgctcat ggtgcttctt 1260  
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<210> 131  
<211> 1020

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (11)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1019)

<223> n equals a,t,g, or c

<400> 131

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ttaagaaact caactgccaa gtgattggtg cttctgtgga ttctcacttc tgtcatctag 360
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<210> 132

<211> 2319

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (10)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2246)

<223> n equals a,t,g, or c

<400> 132

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ttgggaccgg cggtgatgc aggatgacaa ccggggccta ggccaagggc tcaaggacaa 180
```

```

caagagaacc tgcaaccggt tccgcctcct gctagagcgg cgaaccrtgg gcagtgaagg 240
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gaacgccccg gcgctcgctc tgccctgtagc caggatgcag ctcccaggcc ctggtctgcg 360
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gagatgaaac tttggaattg acagtnctaa agtgcattgg gagagtgaat gtgtgagaac 2280
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<210> 133

<211> 1373

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (403)

<223> n equals a,t,g, or c

<400> 133

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ggtcggttga gtcacttccg cgtcaccagc tctgtgcct gccagtcggg gccctccccg 120
ctccagccat gctctccgcc ctgcgccggc ctgccagcgc tgctctccgc cgcagettca 180

```

```

gcacctcggc ccagaacaat gctaaagtag ctgtgctagg ggcctctgga ggcacgcggc 240
agccactttc acttctcctg aagaacagcc ccttggtgag ccgcctgacc ctctatgata 300
tcgcgcacac acccgagtg gccgcagatc tgagccacat cgagaccaa ggcgctgtga 360
aaggctacct cggacctgaa cagctgcctg actgcctgaa agnttgatgat gtggtagtta 420
ttccggctgg agtccccaga aagccaggca tgaccggga cgacctgttc aacaccaatg 480
ccacgattgt ggccaccctg accgctgcct gtgcccagca ctgcccggaa gccatgatct 540
gcgtcattgc caatccggtt aattccacca tccccatcac agcagaagtt ttcaagaagc 600
atggagtgtg caaccccaac aaaatcttcg gcgtgacgac cctggacatc gtcagaagcca 660
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ttttattttt caaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1373

```

&lt;210&gt; 134

&lt;211&gt; 1657

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 134

```

ggaacaagtg cctgtagtgt gtttggatct gtaccctacg actgattata cggatgaatgt 60
gacctgtctg agatctccta agcggcactc agtcaaataa caatagcaac tccccagca 120
gtaaaacaga ccatcagtaa catttcagga ttaaatgaaa cctgcttgag atggagaagc 180
atcaagacag ctgatatgga ggagatgtat ttattccaca tttggggcca gagatggtat 240
cagaaggaat ttgcccagga aatgaccttt aatatcagta gcagcagccg agatcccag 300
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gaatttttta cgggtgcacag aggacctcta ccacgcctca gactgaggaa agccaaggag 480
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acaatatgca gtgagatggg cttaagtttg ggctagagtt tgactttatg aaggagggtca 1380
ttgaaaaaga gaacagtgc gtaggcaaat gtttcaagca ctttagaaac agtacttttc 1440

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tgctgtgtct gttaggcagc attgctttga tgcaatttct attgtcctat atattcaaaa 1560
gtaatgtcta cattccagta aaaatatccc gtaattaaaa aaaaaaaaaa aaaaaaaaaa 1620
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa ggcggcc 1657

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<210> 135

<211> 2360

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1517)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2330)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2353)

<223> n equals a,t,g, or c

<400> 135

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attgacaaaa gcaatggtga tggagaagcc tagtcccctg ctggtcgggc gggaaattgt 180
gagacagtat tacacactgc tgaaccaggc ccagacatg ctgcatagat tttatggaaa 240
gaactcttct tatgtccatg ggggattgga ttcaaatgga aagccagcag atgcagtcta 300
cggacagaaa gaaatccaca ggaaagtgat gtcacaaaac ttcaccaact gccacaccaa 360
gattcgccat gttgatgctc atgccacgct aaatgatggt gtggtagtcc aggtgatggg 420
gcttctctct aacaacaacc aggctttgag gagattcatg caaacgtttg tccttgctcc 480
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agctgccagg gaaggcgacc gacgagataa tcgccttcgg ggacctggag gccctcgagg 1440
tgggctgggt ggtggaatga gaggcctcc ccgtggaggc atggtgcaga aaccaggatt 1500

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```

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gtggaatgat  attttaggaa  taacggactt  ttaaagaagc  aaaaaaaaaa  actgaatttc  1800
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maaaaggcca  aaaattcccc  aaaaccccg  ttaaccacca  grgscaaacn  gttgtggcct  2340
tcccaattaa  ccntgggatt  2360

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&lt;210&gt; 136

&lt;211&gt; 1042

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 136

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gccggtggct  gctgtctctg  ggcgggccgt  gggaggctcc  cgaggtgggg  gccggggcgg  60
gatggctgca  gcggcgggcg  gggccgggag  cgggccctgg  gcggcccagg  agaagcagtt  120
cccgcggcg  ctgctgagtt  tcttcatcta  caaccgcgc  ttcgggccgc  gcgaaggaca  180
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agaaagaacc  ccagtttaag  tt  1042

```

&lt;210&gt; 137

&lt;211&gt; 1037

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 137

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ggcaccggga  gcggcggggt  ggtctacgct  gtgcgcggcg  gacgtcggag  gcagcgggga  60
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ccggccggcg  gaccgaagaa  cgcaggaagg  gggccggggg  gaccgcgcc  cggccggccg  180
cagccatgaa  ctccaacgtg  gagaacctac  ccccgcacat  catccgcctg  gtgtacaagg  240

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aggtgacgac actgaccgca gaccaccccg atggcatcaa ggtctttccc aacgaggagg 300
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tgttccgcat gaaactcctg ctggggaagg acttccctgc ctccccaccc aagggctact 420
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<210> 138

<211> 1490

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1225)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1239)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1348)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1452)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1487)

<223> n equals a,t,g, or c

<400> 138

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ctggcattga ttggtggtac cagtggccag tactatgatt atgattttcc cctatcaatt 180
tatgggcaat catcaccaaa ctgtgcacca gaatgtaact gccctgaaag ctacccaagt 240
gccatgtact gtgatgagct gaaattgaaa agtgtaccaa tgggtgcctcc tggaatcaag 300

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agagttttct ctaaattgaa acaactgaag aagctgcata taaaccacaa caacctgaca 480
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ctctacttag acaacaataa gatcagcaac atccctgatg agtatttcaa gcgttttaat 780
gcattgcagt atctgcgttt atctcacaac gaactggctg atagtggaa acctgggaaat 840
tctttcaatg tgcatccct gggtgagctg gatctgtcct ataacaagct taaaaacata 900
ccaactgtca atgaaaacct tgaaaactat tacctggagg tcaatcaact tgagaagttt 960
gacataaaga gcttctgcaa gatcctgggg ccattatcct actccaagat caagcatttg 1020
cgtttgatg gcaatcgcac ctcaraaacc agtcttccac cggatatgta tgaatgtcta 1080
cgtgktgcta acgaagtcac tcttaattaa tatctgtatc ctggaacaat attttatggk 1140
tatgkttttc tgtgkgtcag ttttcatagt atccatawtt tawtactgkk tattacttcc 1200
atgaatttta aaatctgagg gaaangtttg taaacattna tttttttaa gaaaagagaa 1260
aggcaggcct attcatcaca agaacacaca catatwcacg aatagacatc aaactcatgc 1320
tttatttgta aatttagtgt ttttttantt ctacgtcaaa gatgtgcaaa acctttttacg 1380
gttgaggaa acagccagtt ttaaaatcct taaacttaag ttcctcaagc tggataaaac 1440
ataggagtac cncctgcacaa tatctgaaca tcaatgtcgg taaaatnggg 1490

```

<210> 139

<211> 1684

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (93)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (201)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1657)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1659)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1682)

<223> n equals a,t,g, or c



&lt;400&gt; 139

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tcgaccacg cgtccggccg gctgagccac agcaggggtcg ccgcggggtc ccggggccgt 60
gctcccctgc ccctccggga gcgcgcgggg cgnngcgggg cggggcgga ccaggcgggc 120
gagctggggc ctgcgccctc cctcgggcgg tcacctgggc acgggcgctg caggtgtcgg 180
ggcctcaacc ttgcggaccg nacagccatc gatcctcggg tggcctcgag gtggtggcag 240
ggcgcggccc tgcagtccgg agacgaacgc acggaccggg cctccggagc argttcgyt 300
ggaargaamc gctctcgstt cgtcctacac ttgcgcaaat gtctccgagc ttactcacat 360
agcatattgg tatatcaaaa tgaaatgcaa ggaacaaaa ataacataat tgaaggcagt 420
aaaagtgaat ttaaatagga agatcatcag tcaaggaga cccactggag aggacagaaa 480
atgaagcagt gttttatcat gtgtatttca gcaggctctt ttgaaattta actaaaaata 540
tgactgctct ctcttcagag aactgctctt ttcagtacca gttacgtcaa acaaaccagc 600
ccctagatgt taactatctg ctattcttga tcatacttgg gaaaatatta ttaaatatcc 660
ttactactag aatgagaaga aaaaacacct gtcaaaattt tatggaatat ttttgcat 720
cactagcatt cgttgatctt ttacttttgg taaacatttc cattatattg tatttcagg 780
atattgtact ttttaagcatt aggttcaact aataccacat ctgcctat 840
tttcttttac ttatggcttt ttgcattatc cagttttcct gacagcttgt atagattatt 900
gcctgaattt ctctaaaaa accaagcttt catttaagtg tcaaaaatta ttttatttct 960
ttacagtaat ttttaatttg atttcagtc ttgcttatgt tttgggagac ccagccatct 1020
accaaagcct gaaggcacag aatgcttatt ctgcgtcactg tcctttctat gtcagcattc 1080
agagttactg gctgtcattt ttcatggtga tgattttatt ttagctttc ataacctgtt 1140
gggaagaagt tactactttg gtacaggcta tcaggataac ttctatatg aatgaaacta 1200
tcttatattt tcctttttca tccactcca gttatactgt gagatctaaa aaaatattct 1260
tatccaagct cattgtctgt tttctcagta cctggttacc atttgtaacta cttcaggtaa 1320
tcattgtttt acttaaagtt cagattccag catatattga gatgaatatt ccctgggtat 1380
actttgtcaa tagttttctc attgctacag tgtattgggt taattgtcac aagcttaatt 1440
taaaagacat tggattacct ttggatccat ttgtcaactg gaagtgctgc ttcattccac 1500
ttacaattcc taatcttgag caaattgaaa agcctatatc aataatgatt tgktaatatt 1560
attaattaaa agttacagct gtcataagat cataatttta tgaacagaaa gaactcagga 1620
catattaaaa aataaactgr actaaaacaa aaaaaancna aaaaaaaaaa aaaggcgcg 1680
cnac 1684
```

&lt;210&gt; 140

&lt;211&gt; 427

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (395)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (417)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 140

```
ggacttcctc ccagcacatt cctgcactct gccgtgtcca cactgcccc cagaccaggt 60
cctccaagcc tgctgccagc tccctgcaag cccctcaggt tgggccttgc cacggtgcc 120
gcaggcagcc ctgggctggg ggtaggggac tccctacagg cagcgagccc tgagacctca 180
gagggccacc ccttgagggt ggccaggccc ccagtggcca acctgagtgc tgcctctgcc 240
```

```

accagccctg ctggcccctg gttccgctgg ccccccagat gcctggctga gacacgccat 300
ggcccttcag ctggcccaca cytyttcccg gsccttgga kttggcaytg cagcagacag 360
ytccytgggc accagrcagy taacaggaca cagcngccag cccaaacagc agcggnatg 420
ggggcag                                     427

```

```

<210> 141
<211> 889
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (60)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (698)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (889)
<223> n equals a,t,g, or c

```

```

<400> 141
ggcagcagggt tgacgtcctg tagcatttgc tgttctagaa agtacagaga cacgtagaan 60
agatgggagg atctagaagg aggctgtctc ctgtgtagtg tatatttatc tgtaagttag 120
ccgttgggga aggattgaat acagagacgc tgtctgcttg ctgccttaag acagctagct 180
gaattgctga ttaactttta aaataccagc cttggtttat ttttcttaga atctgttgct 240
aagactgggg acgctgtttt cttttacaaa gggaaatcta agttaatttc aaggcattcg 300
aaatggggaa agactattat tgcatttttg gaattgagaa aggagcttca gatgaagata 360
ttaaaaaggc ttaccgaaaa caagccctca aatttcattc ggacaagaac aaatctcctc 420
aggcagagga aaaattttaa gaggtcgagc aagcttatga agtattgagt gatcctaaaa 480
agagagaaat atatgrtcag tttggggagg aagggttgaa aggaggagca ggaggtactg 540
atggacaagg aggtaccttc cggtagacct ttcattggcg tcctcatgct acatttgctg 600
catttttcgg aggggtccaac ccctttgaaa ttttctttgg aagacgaatg ggtgggtggt 660
gagattctga agaaatggaa atagrtggtg atccttttag tgcctttggt ttcagcatga 720
atggatatcc aagagacagg aattctgtgg ggccatccc cctcaaacia gatcctccag 780
ttattcatga acttagagta tcacttgaag agatatatag tggttgtacc aaacgggatg 840
aaagatttct cgaaaaagggt taaaacgctg atggtaggag ttacagttn 889

```

```

<210> 142
<211> 1505
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (1493)
<223> n equals a,t,g, or c

```

<220>  
 <221> misc feature  
 <222> (1499)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1500)  
 <223> n equals a,t,g, or c

<400> 142  
 agtgagggaa gcgatgggag cggaatggc cggccacagg gtcgcaggag acgggacgcc 60  
 agcttttggc tccgttccgc tggctccttc gtcagtactg acacctcggg cttgtagagc 120  
 acttcacgca gcaaaagcgc cccccgtcta tatcatatcg cctctcgggc ctcctaaaag 180  
 tcgtatgaga tggagctgga ggaggggaag gcaggcagcg gactccgcca atattatctg 240  
 tccaagattg aagaactcca gctgattgtg aatgataaga gccaaaacct ccggaggctg 300  
 caggcacaga ggaacgaact aaatgctaaa gttcgcctat tgcgggagga gctacagctg 360  
 ctgcaggagc agggctccta tgtgggggaa gtagtccggg ccatggataa gaagaaagtg 420  
 ttggtcaagg tacatcctga aggtaaatgt gttgtagacg tggacaaaaa cattgacatc 480  
 aatgatgtga caccgaattg ccgggtggct ctaaggaatg acagctacac tctgcacaag 540  
 atcctgcccc acaaggtaga cccattagtg tcaactgatga tggtaggaga agtaccagat 600  
 tcaacttatg agatgattgg tggactggac aaacagatca aggagatcaa agaagtgatc 660  
 gagctgcctg ttaagcatcc tgagctcttc gaagcactgg gcattgctca gccaagggga 720  
 gtgctgctgt atggacctcc aggcaactgg aagacactgt tggcccgggc tgtggctcat 780  
 catacggact gtacctttat tcgtgtctct ggctctgaat tggtagagaa attcataggg 840  
 gaaggggcaa gaatggtgag ggagctgttt gtcattggcag gggaacatgc tccatctatc 900  
 atcttcatgg acgaaatcga ctccatcggc tcctcgcggc tggagggggg ttctggaggg 960  
 gacagtgaag tgcagcgcac gatgctggag ttgctcaacc agctygacgg ctttgaggcc 1020  
 accaagaaca tcaagggttat catggctact aataggattg atatcctgga ctcggcactg 1080  
 cttcgcccag ggcgcattga cagaaaaatt gaattccac ccccaatga ggagggcccg 1140  
 ctggacattt tgaagattca ttctcggaag atgaacctga cccgggggat caacctgaga 1200  
 aaaattgctg agctcatgcc aggagcatca ggggctgaag tgaaggcgt gtgcacagaa 1260  
 gctggcatgt atgcccctgc agaacggcga gtccatgtca ctcaggagga ctttgagatg 1320  
 gcagtagcca aggtcatgca gaaggacagt gagaaaaaca tgtccatcaa gaaattatgg 1380  
 aagtgagtgg acagcctttg tgtgtatctc tccaataaag ctctgtgggc caagtcaaaa 1440  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aanggggggnn 1500  
 ccccc 1505

<210> 143  
 <211> 1235  
 <212> DNA  
 <213> Homo sapiens

<400> 143  
 cggacggtgg gtagcggcgg cggcgctggc accccggccc cggcgggccc cggcggacgg 60  
 cgggcaaagg tcccaggaag gtggcgctcag catctgcagc cgcgtcgacg ttgtcggagc 120  
 ctccgcggag gaccaggag agccggacta ggaccagggc cctgggcctc cccacactcc 180  
 ccatggagaa gctggcggcc tctacagagc cccaagggcc tcggccgggc ctgggcccgtg 240  
 agagtgtcca ggtgcccgat gaccaagact ttcgcagctt ccggtcagag tgtgaggctg 300  
 aggtgggctg gaacctgacc tatagcaggg ctggggtgtc tgtctgggtg caggctgtgg 360

```

agatggatcg gacgctgcac aagatcaagt gccggatgga gtgctgtgat gtgccagccg 420
agacactcta cgacgtccta cacgacattg agtaccgcaa gaaatgggac agcaacgtca 480
ttgagacttt tgacatcgcc cgcttgacag tcaacgctga cgtgggctat tactcctgga 540
ggtgtcccaa gcccctgaag aaccgtgatg tcatcacctt ccgctcctgg ctccccatgg 600
gcgctgatta catcattatg aactactcag tcaaacaatcc caaataccca cctcggaaaag 660
acttgggtccg agctgtgtcc atccagacgg gctacctcat ccagagcaca gggcccaaga 720
gctgcgtcat cacctacctg gccaggtgg accccaaagg ctcccttacc aagtgggtgg 780
tgaataaata ttctcagttc ctggctccca aggccatgaa gaagatgtac aaggcgtgcc 840
tcaagtaccc cgagtggaaa cagaagcacc tgccctactt caagcgtgg ctgcaccgg 900
agcagagccc gttgccgagc ctggcgctgt cggagctgtc ggtgcagcat gcggactcac 960
tggaagaacat cgacgagagc gcggtggccg agagcagaga ggagcggatg ggcggcgcg 1020
gcggcgaggg cagcgacgac gacacctcgc tcacctgagc gycgcaccgc ttcagggacg 1080
gagacaggac cgggcgagcc ctggggcgcc gcccgctcct gcaactttct cctccccca 1140
cccgccacct ggtggcaccg ggccaggccc aggcgggtgc tgcagcctgg ctggacagag 1200
ccccaataaa cgatcccaca gcctcaaaaa aaaaaa 1235

```

<210> 144

<211> 1420

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1385)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1396)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1400)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1410)

<223> n equals a,t,g, or c

<400> 144

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gcaagaacgg agctgactga ggaaccaact ggagggtctt cactctctcc ttccccagtg 60
tacaaaacca gttttctgca acattcagga gccaaatgag gaaaaagaat caagaatctg 120
actcacagcc catctgatct gttcaaagct gtcttttcca cctgctgaaa ttcattaaat 180
cactggaggc atgcataatg aatggagaat gagtgaactt ccaatgcaac ttggattcac 240
aaaccatta tcatagccaa tatgcagatt ttaaacagca tttcacattt catttgacca 300
tgtcttcttt ttgcacatgc ctgctgcaga attccctact agaatgtgaa acaacgaaca 360
aaccacagaa cttagagtgt gctggttagt cacataactt agtagcagga ttgtgtatcc 420
aggcacaagg gtgtctttgc taatgtttct ttgtacctg ccctgcttca aacgctaaat 480
ggtatgggtc tttctttgtt gccagccata ttctacaaat aagacttttc aatatagtta 540

```

```

tgagtaatat aattttatgt acatataatg ttagaatatt gtacagaatc ttggtttcta 600
cgatgcgctt ttcttgtttc aaaaagagga aaatgcttga tttttgttga tgatactttt 660
gttactgtcc ttaattttcc atagtttggt ttcttaattg tgctcactaa gcacgatct 720
gtgctgatgc caagctatgg actatgtacg caagaccgag caatagacag aggtgcctag 780
gggtccaaaca cactgaacgc acgtggaccg cctggwtcag gagcctcatc agacccttct 840
ccatgcacat ccttcccaaa cagtcacaga ttccattgaa aggagcagat tctatcagtt 900
cttctgtgca gactttaaga gctgaacgtt ctggttctgg aagccatgtg actgcgcaga 960
acaacctaag aaacctttg tgtcctgagg ggtcgttgac ctctccttcc gggtcggagc 1020
agtactctg agggcaaagc gtggtccact gtgtgtgatg ttttcaggat gctagggta 1080
aagaaagaaa ccaagtggta cataagccca gcttttctgc tgggctaagt gtaagtgtga 1140
gtaacatggt caagcccctc ttttttgggc tatgtaaagc ctttctctgc ttgcattaat 1200
gctatctccc tgtgtactgt ttctcttaaa tggagcagat agaaatctgc agtggtggca 1260
gataggtgga tgggagagg atggataatt ttatcttctg ggccacagag ctggcagccc 1320
cagtttgtcc agagtccttt aaatggaaac ccccaaatcc atcccttctt ttccctaacc 1380
cccangggga tattcntagn attaagggcn cgggataagt 1420

```

<210> 145

<211> 1919

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1882)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1898)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1919)

<223> n equals a,t,g, or c

<400> 145

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gccacgcgt ccggccgctc gtccgcccgg cttgaggccc gcggggagcg cggcgcaatt 60
cgtcggcccg cgggggggag gcctcccggc atcttcgagg cgaccaagga ctaccaggaa 120
ggggagcggc tgggatggcg cgtccggggc ccgskagtag aaagcgggag acctggtctt 180
cgccaagatg aagggtacc cgcactggcc ggcccggatt gatgaactcc cagaggcgct 240
gtgaagcctt cagcaaaaca gtatcctatc ttcttttttg gcacccatga aactgcattt 300
ctaggtccca aagacctttt tccatataag gagtacaaag acaagtttgg aaagtcaaac 360
aaacggaaag gatttaacga aggattgtgg gaaatagaaa ataaccagg agtaaaagttt 420
actggctacc aggcaattca gcaacagagc tcttcagaaa ctgagggaga agtggaagt 480
actgcagatg caagcagtga ggaagaaggt gatagagtag aagaagatgg aaaaggcaaa 540
agaaagaatg aaaaagcagg ctcaaaacgg aaaaagtcac atacttcaaa gaaatcctct 600
aaacagtccc ggaaatctcc aggagatgaa gatgacaaag actgcaaaga agaggaaaac 660
aaaagcagct ctgaggggtg agatgagggg aacgacacaa gaaacacaac ttcagacttg 720
cagaaaacca gtgaagggac ctaactacca taatgaatgc tgcatattaa gagaaccac 780
aagaaggtta tatgtttggt tgtctaatat tcttggattt gatatgaacc aacacatagt 840

```

```

ccttggtgtgc attgacagaa ccccgagtttg tatgtacatt attcatattc ctctctggtg 900
tgtttcgggg ggaaaagaca ttttagcctt ttttaaaagt tactgattta atttcatggt 960
atttggtgtgc atgaagttgc ccttaaccac taaggattat caagattttt gcgcagactt 1020
atacatgtct aggatccttt tatcaaggca gttatgatca tcgttttcct gccttgaccc 1080
caccatcatc aaacactcag ttaaataata attaacattt tttagatgac cactcaacat 1140
aatgcttaag aatggaattt cctctctgtg acagaaccca ggaattaatt cctaaataca 1200
taacggttgt atattgaaga cgaaattaaa attgtccttc agttttgagg ccatgtgtaa 1260
agtttaacca tattgtaaaa tatctattcc gtattagaaa tagctagttg acagcttata 1320
cttctcaaaa ttcataattgt tatgtacaca aactaagttt ctatatgtga agttagtga 1380
tctttttgtg ttactccaaa ataaaggcaa tgatttattt ttttcccagt gccaatataa 1440
ttttgagcta agcactcaag gtggatactt tacattttta agctggaatc agcaacagcc 1500
ctatgggaaa ccagacaaaag cattgacttt taaatgtaga cttttaaaat aaactgtttt 1560
cttttggaac tacaattaga atagttaata ttcacctta aaccattatt atgtgtacat 1620
tattgttgct attgtgataa tagagaattt tatttatttt tatgccagct tatattgtga 1680
gaacacattt agtcagtttg ggttttatca atcctgttaa tgcttgctct tggaacatct 1740
ttcgcgtatt cacggtttgt agttgaaaag tttactgtaa aaaaatcaaa aacaaaaaaa 1800
tgtattgttt ttacagaata aatttatttg aatgtgwact ggggagtaag atttgagggt 1860
gtaagcaaac taagttagtg tnaattggcc tccaatangt aacgtggagg cattaatgn 1919

```

<210> 146

<211> 1379

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (925)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1371)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1377)

<223> n equals a,t,g, or c

<400> 146

```

gcccacgcgt ccgccacgc gtccgcccac gcgtccgcc acgcgtccgg taagtttaga 60
tgactggtca atatcttaaa aatgtatatt agtaagaagt tcttcctgga atttttcttt 120
cgattctggc agaataaaca ggtgttttta gttttccac tgtctgagcc aagcaggacc 180
ctgtcccaga gcaagagatg tccccttcca tctctgaccc ttgcctggga caagctttga 240
tgggggggccc cagcttcaag gctgtggtgg gaacagcacc cccaaatgcc agcctctcct 300
ttcttcccat ccaccagtat actgcggggc catttctggt ctttgtccaa caggaaaccc 360
atctctggtg ggatatgcct tccagtgcc cagggccact caccatgc atctctgtcc 420
tgcccgtcag tgctgggacg gacagcaagg gcaagcccag tgtctggcrg atagggtgggt 480
gggaacagag aggggagaat gccgtcctaa gcttctgctt ggggatcccc cacacgacct 540
gggtactgcc tgggaaacct gtcctaagta aaactatgga cctcgcctcg cccaccggcc 600
tgcraagcca gcattctcgt gaaggtggat ggaagcgcct ttgtcctcay tttgagctgc 660

```

```

aagctggggtc agcgggtctctg aagccctcga gtgactttct aacccaagac ccagcccctg 720
gcaggaggag ggtgggtgca gggctgggtg gacaaaaaga ggcctcagca ggcctggaag 780
acccttccag tacatccac agcgtgtcga gcagctggga gaacctgtgt caagctcgag 840
ccgtcatagg tccccatgag gtgtctgaag ccccttcttg gtgatgggag gcagaggtgc 900
tgacgttctg gagcatggac gtgantcytc aagctggctc cgcgtgggcc cttggaggggt 960
gccaggtgtg tggtgacctt ctggatgcct ttaacttcat ggctgcgtca ttcctgattt 1020
agaactttaa ccggagcttc atctagtgat tgcaaaactg gaccaatggg aggacggcgc 1080
gcagcccgcct cctccgtgg aatggagctc agctcttcgg aggcatacaa gcacctgtcg 1140
cctccgtgggt cccoctgccg agggagtgcg gcctctgcaa ggttcggggg tggcttcgtt 1200
tgcttgaggt ggccggccct gcttggtcca tgtggatgtt tgtgagcctc ggtcctacag 1260
cactgtgtag gctgcattctg tttcgtgctg gtctgttga cttgtatgat atccacaaat 1320
aaatatatttc atggcaaaaa aaaaaaaaaa aaaaaaaaaa aaaagggggg nccccnaa 1379

```

<210> 147

<211> 514

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (406)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (412)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (418)

<223> n equals a,t,g, or c

<400> 147

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ttnggaaact gatcacttat caaggcttta tatattcttt acggatttag acatcaccat 60
accaagaagc ttactccatc tattccggtc tttgtaggac aggccttcatt tttcagccca 120
tgtttctgtaa gccacacagt atgcctgcag aagctgctta tcggagccaa atataattgt 180
cagtacaatt taaagaccac tatgtgtccc cggagaccaa cctgtttatt tccctgaaag 240
accgcaacac cccacacaac atgtttcaga catttggtacc ttgttagata agacacttgt 300
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gacgcgtggg cggacgcgtg ggcggacgcg tgggaggacg cgtgggaggga cgcgtgggag 480
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<210> 148

<211> 2058

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 148

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aaaaaaaaaa aaaaaaaag

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&lt;210&gt; 149

&lt;211&gt; 1781

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 149

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ggcaattact aaggaaggat tgtattttat aggataactt cattattttct ctctcttttt 60
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taactcccag ggggttgact ggtggggtaa ctgagcctgc tttgcagtag gtcaccctgc 180
caaacaagct aatatggaaa ccacatgtaa cttagccaga ctataccttg tgtagcttca 240
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<210> 150

<211> 1709

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1612)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1660)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1678)

<223> n equals a,t,g, or c

<400> 150

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tgcgctcaggg acctgccga ctcagtggcc gccatggcat cagatgaagg caaacttttt 120
gttggagggc tgagttttga caccaatgag cagtcgctgg agcaggctct ctcaaagtac 180
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gggtttgtca cctttgagaa cattgacgac gctaaggatg ccatgatggc catgaatggg 300
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caggggactt cagaaggcaa cggttacta 1709

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<210> 151

<211> 922

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (906)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (915)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (922)

<223> n equals a,t,g, or c

<400> 151

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tagacaaggc agttgaggag gagggagcgc ttgaggggga ctggcctggc gtgcactccg 120
cacctcgggg acattattgc gcgtggaacg gctgcttttg gaagactatt gcccagaaga 180
aaagatgttt ggttttcaca agccaaagat gtaccgaagt atagagggct gctgtatttg 240

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cagagctaag tcctccagtt ctcgattcac tgacagtaaa cgctatgaaa aggacttcca 300
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tgtgaaaaga tggaaagaagt tgccagcagg atcaaaaaaa aactggaatc atgtggtaga 420
tgcaaggggct ggacccagtc taaagactac attgaaacca aagaaagtga aaactctatc 480
tgggaacagg ataaaaagca accagatcag taaactgcag aaggaattta aacgtcataa 540
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gaaagcagct gctgagaagc cagaggagca gggccagagc ctctgcccac ctccactcag 840
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```

<210> 152

<211> 635

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (13)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (594)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (614)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (616)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (628)

<223> n equals a,t,g, or c

<400> 152

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ctttctcgac tccatcttcg cggtagctgg gaccgccgtt cagtcgccaa tatgcagctc 120
tttgtccgcg cccaggagct acacaccttc gaggtgaccg gccaggaaac ggtcgcccag 180
atcaaggctc atgtagcctc actggagggc attgccccgg aagatcaagt cgtgctcctg 240
gcaggcgcgc ccctggagga tgaggccact ctgggccagt gcggggtgga ggccctgact 300
accctggaag tagcaggccg catgcttgga ggtaaagtcc atggttccct ggcccgtgct 360
ggaaaagtga gaggtcagac tcctaagggt gccaaacagg agaagaagaa gaagaagaca 420

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ggtcgggcta agcggcggat gcagtacaac cggcgctttg tcaacgttgt gcccaccttt 480
ggcaagaaga agggcccca tgccaactct taagtctttt gtaattctgg ctttctctaa 540
taaaaaagcc acttagttca aaaaaaaaaa aaaaamtgcg gggggggccc gkancccaat 600
ttscctata gggngncgtt taaattcntt ggcgg                                     635

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&lt;210&gt; 153

&lt;211&gt; 2328

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 153

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acggcagtg cactcaccgc gctcgcgcgc cccggcgccc ccacgcgcgc gcgtcgttct 60
cccgcccgt cgctccccgc cgctcacacc tgagctcact cgcgcacgcc cgccccggccc 120
gagaaccgc cgccgcctc ggccccgcgc aagccccgcc gcgccatgtc ttcgcctccc 180
gaaggaaact agagactaaa gctggacacc cgcccgccgt gaaagctggt ggaatgcgaa 240
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aaccagcagt ttcgccccaa tcctactctg ctgggaaatc taaggcaaaa ccaagtgtct 600
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<210> 154  
 <211> 1268  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (80)  
 <223> n equals a,t,g, or c

<400> 154  
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 aacctgaagc acaagttccc atggctgtcg gaggccgggc tgcgctgctg cacttcctgt 420  
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 ccgcgagcca ggctgaccag gcgcccggga tccagctcat ccccttggct gggaacatcc 720  
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 ggacaaggta tggggtgagg gccacaattg aggatacccc gagactacca ggagagccct 1140  
 gggctggagg ctgagctgca tccctgctcc ccacatggag gacccaacag gaggccgtgg 1200  
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 aaaaaaaa 1268

<210> 155  
 <211> 4299  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (2813)  
 <223> n equals a,t,g, or c

<400> 155  
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 gccatggccg acaaggaagc agccttcgac gacgcagtgg aagaacgagt gatcaacgag 180  
 gaatacaaaa tatggaaaaa gaacaccctt tttctttatg atttggtgat gacctatgct 240  
 ctggagtggc ccagcctaac tgcccagtgg cttccagatg taaccagacc agaagggaaa 300  
 gatttcagca ttcacgact tgtcctgggg acacacacat cggatgaaca aaaccatctt 360

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gttatagcca gtgtgcagct ccctaattgat gatgctcagt ttgatgcgtc acactacgac 420
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&lt;210&gt; 156

&lt;211&gt; 1006

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 156

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&lt;210&gt; 157

&lt;211&gt; 1686

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 157

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<211> 4147

<212> DNA

<213> Homo sapiens

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<220>

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<222> (292)

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<222> (4145)

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<222> (4146)

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<400> 158



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<210> 159

<211> 1242

<212> DNA

<213> Homo sapiens

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<222> (1236)

<223> n equals a,t,g, or c

<400> 159

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<211> 2229

<212> DNA

<213> Homo sapiens

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<221> misc feature

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<220>

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<222> (43)

<223> n equals a,t,g, or c

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<222> (55)

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<222> (59)

<223> n equals a,t,g, or c

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<222> (128)

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<210> 161

<211> 1920

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (43)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (119)

<223> n equals a,t,g, or c

<220>  
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<222> (1755)  
<223> n equals a,t,g, or c

<220>  
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<222> (1766)  
<223> n equals a,t,g, or c

<220>  
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<220>  
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<223> n equals a,t,g, or c

<400> 161  
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<210> 162

<211> 2619

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2546)

<223> n equals a,t,g, or c

<400> 162

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<210> 163

<211> 1419

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (230)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (624)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (697)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1187)

<223> n equals a,t,g, or c

<400> 163

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ggtgattagc ggtggcgcca gccntagget acccttgcca aggccgccca cctgcatcag 660
cctctggcca gacggcccg cgtgcctgca ttgcancag ctccgcctgg caccactcc 720

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<210> 164

<211> 3810

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (189)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2523)

<223> n equals a,t,g, or c

<400> 164

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gagagaggnc ttctgctgg agatgttcta gagccagtag aaaagcctca tgaaggctct 240
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agtgtggtga ttgttttcca caatgaggct tggagcacac ttctgcgaac tgtccatagt 480
gtcattaatc gtcaccaag acacatgata gaagaaattg ttctagtaga tgatgccagt 540
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catgtaattc gaatggaaca acgttctgga ttgatcagag ctagattaaa aggagctgct 660
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atactttgaa aatacaaaat attcctgaaa 3810

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&lt;210&gt; 165

&lt;211&gt; 817

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 165

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ccactggaga gaacaggctg gcctctgcac tctggattgg tgacaggagt tatccaggcc 120

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<210> 166

<211> 1578

<212> DNA

<213> Homo sapiens

<220>

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<222> (16)

<223> n equals a,t,g,.or c

<220>

<221> misc feature

<222> (38)

<223> n equals a,t,g, or c

<400> 166

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cataccagat aatagctgca ttactgccaa ctgaccttat aaccctctgc accttcaaaa 1500
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aaatcttcgg gggggggg

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&lt;210&gt; 167

&lt;211&gt; 1694

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 167

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gccacgcgt ccgccacgc gtccgccac gegtssgggc ggcggcggcg acggccgggc 60
gctcctgaag cagcagttat ggagcttccc tcagggccgg ggccggagcg gctctttgac 120
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aaaaaaaaact cgag

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&lt;210&gt; 168

&lt;211&gt; 1636

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 168

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gtgctgttgc acgtgctgtt tgagcacgcg gtcggctacg cgctgctggc gctgaaggaa 120
gtggaggaga tcagtctgct gcagccgagc gtggaggagt ccgtgctcaa cctgggcaaa 180

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ttgaagagac cgctgg 1636

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&lt;210&gt; 169

&lt;211&gt; 667

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 169

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atcatccgc ctctgtttac agtcagcgtg gaccatcggg gcacttgga cgggccctgg 480
gtgtccactg aggtgctggc tgcggcgatc ggccttgtga tctactactt ggccttcagt 540
gcgaagagcc acatccaggg ctgagggcgg caccacagcc ctgcccttgc ttccttcaat 600
aaacatcaca ggacctggga ctgcacagga aaaaaaaaaa aaactcgrg gggggcccg 660
tacccaa 667

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&lt;210&gt; 170

&lt;211&gt; 3598

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

<221> misc feature  
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 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (16)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (22)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
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 <223> n equals a,t,g, or c

<400> 170

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catatacgag cgtgcttttag atgtagacta ccgaaatatt acactctggc tgaaatacgc 480
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<210> 171

<211> 940

<212> DNA

<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (12)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (919)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
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 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
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 <223> n equals a,t,g, or c

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<210> 172  
 <211> 1458  
 <212> DNA  
 <213> Homo sapiens

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<210> 173

<211> 2709

<212> DNA

<213> Homo sapiens

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<220>

<221> misc feature

<222> (2622)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2659)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (2670)

<223> n equals a,t,g, or c

<400> 173

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cttgggtggc 2709

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&lt;210&gt; 174

&lt;211&gt; 1013

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 174

```

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<210> 175

<211> 1697

<212> DNA

<213> Homo sapiens

<400> 175

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atcacgcccc tgtggatcat cactgctgca cactgtgttt atgacttgta cctccccaag 180
tcatggacca tccagggtggg tctagtttcc ctgttggaaca atccagcccc atcccacttg 240
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<210> 176

<211> 1409

<212> DNA

<213> Homo sapiens

<400> 176

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aaaatgcgac cgctgagcct gagctcacat ccgctggcgc cgccagccg gagggccccg 360
```

```

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cccaggaact tggttatggg tgtctcaagt tcggcggtca ggcttacagc gacgtggaac 540
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aaaaaaaaaa aaaaaaaaaa aaactcgag 1409

```

&lt;210&gt; 177

&lt;211&gt; 1503

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 177

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aaa 1503

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<210> 178  
<211> 1378  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (3)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (82)  
<223> n equals a,t,g, or c

<400> 178  
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aactccttgg atttatttcc catttttaaaa ttttttagcg taagttcaga tttataatct 360  
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tgtattagct attataggta atctagagat gatttaaagt gtatggtagg atgtgcacag 660  
gttatatgca aatactacac cattttctat aagggacttg aacatcatgg acttttagtat 720  
cctagggggg tcttggaacc catcacccat aggggcacca taggacaact atagtaccgt 780  
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cattttctaa ttagaagtca catgataaat ataatcagta tagtaataat accataatgt 1320  
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<210> 179  
<211> 2251  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (2020)  
<223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2050)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 179

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cgcttcttat ggaataaatc agttttccta tttgtttcct gaagagttta aagccattta 300
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&lt;210&gt; 180

&lt;211&gt; 1000

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

<221> misc feature

<222> (20)

<223> n equals a,t,g, or c

<400> 180

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aaaaaaaaaa aaaaaaaaaa maaaaaaggg gggggccccc 1000

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<210> 181

<211> 1429

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (761)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1407)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1420)

<223> n equals a,t,g, or c

<400> 181

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acctgcgctt ctgctggagg aggggaagct gggcccaaag gccmgsgrag gcagcgtggg 360
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cagggctgtt ggaggacccc gagggctgag gagcagcagg acccgccctgc tcccatcctc 480
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<210> 182

<211> 2725

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2713)

<223> n equals a,t,g, or c

<400> 182

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<210> 183

<211> 1751

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (344)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (416)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1617)

<223> n equals a,t,g, or c

<400> 183

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gtggtctgtg ggttctcaga gcagaccacc tgccaggaaag tggatcatgc actagcccaa 180
gcaataggcc agactggccg ctttgtgctt gtgcagcggc ttcgggagaa ggagcggcag 240
ttgctgccac aagagtgtcc agtgggcgcc caggccacct gcggacagtt tgccagcgat 300

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gtccagtttg tcctgagggc cacagggccc agcctagctg ggangccctc ctcagacagc 360
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<210> 184

<211> 2200

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2096)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2140)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2157)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2181)

<223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (2184)  
 <223> n equals a,t,g, or c

<400> 184

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ccactactgc ttccccgaaa cagacaaata tatgagcaca acgaagctgc cctattcatg 180
gaccacagcg ggatgctggg gatgcttcct tttagacctg ggatcccttt tgcaagatat 240
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cgcaagttag atcgatttca tcccaaagaa cttctggagt gtgcatttga tattgtcact 360
tctaccacca acagctttct gccactgctt gaaattatct acactatcta tgaaatcatc 420
caagagtttc cagcacttca ggaaagaaat tacagtattt atttgaacca taccatgtta 480
ttgaaagcaa tactcttaca ctgtgggac ccagaagata aactcagtca agtctacatt 540
attctgtatg atgctgtgac agagaagctg acgaggagag aagtggagc taaattttgt 600
aatctgtctt tgtcttctaa tagtctgtgt cgactctaca agtttattga acagaaggga 660
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<210> 185  
 <211> 1987  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature

&lt;222&gt; (523)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 185

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accaaacatt tgaaatcaac tacaagtaca tgggactggg gataaatgat cctaaactat 1980
caagtca

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&lt;210&gt; 186

&lt;211&gt; 1737

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 186

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```

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<210> 187

<211> 1132

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1131)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1132)

<223> n equals a,t,g, or c

<400> 187

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agatcctgga gtcccagagg cccctgcag gcatccctgt agcccatcc agtggctgag 180
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acaccgagat gcagcaacga cgtcacgggc catgtcgacg tcacacatat taatgtcaca 600
cagacgcggc gatggcatca cacagacggt gatgatgtca cacacagaca cagtgacaac 660

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acacaccatg acaacgacac ctatagatat ggcaccaaca tcacatgcac gcatgccctt 720
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<210> 188

<211> 1267

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (12)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (25)

<223> n equals a,t,g, or c

<400> 188

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tgggtagatg tcaataaatg ttacatacac aaataaataa aatgtttatt ccatggtaaa 1200
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aaaaataa                                     1267

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<210> 189

<211> 3787

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (22)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (155)

<223> n equals a,t,g, or c

<400> 189

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<210> 190

<211> 554

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (520)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (542)

<223> n equals a,t,g, or c

<400> 190

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gttgatcagt acagaaaaca aattggtaaa caggattata aaaaaactaa acctatttta 180
cgagcaacca aattaaaagc agaagcaaag aaaacagcaa taggcataaa ggaagttggc 240
cttgactttg cagctatatt ggcactacta ctggctttct atgctttctt ttatctcaga 300
ctcaccacgg atgttgaccc tgatctggac caagatgaag attagctaag caacaatcaa 360
tgcataaaag agaaataact ttacgaaagc accttttggg accaaaaactt tcaatactga 420
aactgtaaca tctttaattm tttctgctaa tattttcagt ttgcagacat atgatttttg 480

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atagttgcat aggatgtcag gaaaagaacc ttacctagen atgcagtata gtatgtgcta 540  
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<210> 191

<211> 874

<212> DNA

<213> Homo sapiens

<400> 191

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 gccgtgctgc atggcacctg cctgcggcac gtggccaatc cccgcggcgc tgtcacgccg 180  
 gagtacaccg tagccaatgt catctctgtc ggctcggggc tgctgagcgt ttccgtggga 240  
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 tgtcactcac tgtggccaac ggtggccgcc gccttattgc tgactgccac ccaggactgc 420  
 tggatcctct ggtaccactg gatgaggggc cgggacatac tgactgcccc tttagaccca 480  
 caagaatcta tgatacagcc ttggctctct ggatcccttc tttgctcatg tctgcagggg 540  
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 gtaaaaggca ggaaaatgag cagctactgg atcaaaatca agaaatccgg gcatcacaga 720  
 gaagttgggt ttaggacagc aggtgctgtt ccgagactca gtcctaaagg gttttttttc 780  
 ccactaagca aggggccctg acctcgggat gagataacaa attgtaataa agtaacttct 840  
 cttttcttct aaaaaaaaaa aaaaaaaact cgag 874

<210> 192

<211> 2103

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (140)

<223> n equals a,t,g, or c

<400> 192

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 agttttgtag caggactttn ggttgtaaat cgactattac caacctactg gtgggtgaga 180  
 gttcaagaaa cccatgaaaa aggacatagt ggaagatgaa gatgatgact ttctgaaagg 240  
 cgaagtgcgc cagaatgata ccgtgattgg gatcacacca agctcctttg acacgcattt 300  
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 ctgacggcag aaatttgga ctgagatgtg acatttggga ttccccatca cttgtcatgc 420  
 cctcagcacc cagcttgtgc cattgggcatt tgatggcatt gaactagagc gtagtcctgc 480  
 ctcggtctgt gcacttccag gttcgcactga atcaagcatc tgaagactgg gtttttttgt 540  
 tgttggtgtt ccccttacag acaaaatgaa gactatcatg tgcaatcttt tacagtgggg 600  
 ttgatgatac atttggaagg atttgcttgt ttaatatgta ctttttttgt gttaacagct 660  
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 aagaatcctc taagataaaa cttctattta aagactttta ctagaaagtg tttatttttg 840  
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<210> 193

<211> 1317

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1314)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1315)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1316)

<223> n equals a,t,g, or c

<400> 193

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ccttctgaag ttggaatctg taatgattta aaacatgaga ctggtccagt gggcttgttg 120
ctccagacct catgccttct gggacccaga catctctgca atctcgggaa ctggaatata 180
ccacttcttg tcaaggtact agcaagttgc cgtggataca gaaatctctg caggcaagtt 240
gctccagagc atattgcagg acaagcctgt aacgaatagt taaattcacg gcatctggat 300
tcctaatact tttccgaaat ggcaggtgtg agtgcoctgta taaaatattc tatgtttacc 360
ttcaacttct tgttctggct atgtggatat ttgatcctag cattagcaat atgggtacga 420
gtaagcaatg actctcaagc aatttttggg tctgaagatg taggctctag ctctacgtt 480

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gctgtggaca tattgattgc tgtaggtgcc atcatcatga ttctgggctt cctgggatgc 540
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atcctgctcc tgcaggtggc gacaggtatc ctaggagctg ttttcaaadc taagtctgat 660
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<210> 194

<211> 1252

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1231)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1240)

<223> n equals a,t,g, or c

<400> 194

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<210> 195

<211> 1688

<212> DNA

<213> Homo sapiens

<400> 195

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cagctggatg caccatcccc caatgcaccc cctgcgcgct ggcagcaaaa gccaagggaag 180  
ccgcagcccg gccccctcac ccatgcgggc cgccaaccga tcccacagcg ccggcaggac 240  
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ccaaggcatc cgctgaagac caacccatca cctcagttgt tttttatatt tctaataaag 1620  
tcatgtctcc cttcatgttt tttttttaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1680  
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<210> 196

<211> 756

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (756)

<223> n equals a,t,g, or c

<400> 196

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aggtagaggc cagggcagcg cgtccgggag cggagtccgc gccgcgccg gccatgccgg 120

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acagctggga caaggatgtg taccctgagc ccccgcgccg cagcgccgtg cagcccaatc 180
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gccgcgtgcc agacatcact gagtgcagg aggaggacat catgtgcatg tatgaagccg 360
aaatgcagtg gaagagggac taaaaagtcg accaagaaat tatcaacatt atgcaggatc 420
ggctcaaagc ctgtcagcag agggaaggac agaactacca gcagaactgt atcaaggaag 480
tggagcagtt caccaggtg gccaaaggcct accaggaccg ctatcaggac ctgggggcct 540
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaattn 756

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<210> 197

<211> 1471

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (458)

<223> n equals a,t,g, or c

<400> 197

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aaattattaa taaaataaaa aaaaaaaaaa a 1471

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<210> 198

<211> 692

<212> DNA  
 <213> Homo sapiens  
  
 <220>  
 <221> misc feature  
 <222> (43)  
 <223> n equals a,t,g, or c

<400> 198  
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 ttttatctgc gttactacgt ggggcacaag ggcaagtctg gccacgagtt cctggagttt 180  
 gagtttcgac cggacgggaa gttaagatat gccacaaca gcaattacaa gaatgatgtc 240  
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 cggcaggagc ttgaaatcgt cattggagat gaacacattt cttttacaac atcaaaaatt 420  
 ggttccctta ttgatgtcaa tcaatccaag gatccagaag gcttacgagt attttattat 480  
 cttgtccagg acctgaagt tttggtcttc agtcttattg gattacactt caagattaaa 540  
 ccaatctaga ctgaatattg gtgtggacat ggggggtggg tgggagtaga aaattttgtg 600  
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<210> 199  
 <211> 1573  
 <212> DNA  
 <213> Homo sapiens

<400> 199  
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 aataaaaaac tgaaagcaaa gcttgctcag tatgaaccac ctccaggagga gaagcgtgct 360  
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 aagaggggtg ctgaattttt aggccaaaaga ctgatattaa tacaatcac tcactaactg 1380

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aaaaaaaaaa aaa 1573

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<210> 200

<211> 2742

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (26)

<223> n equals a,t,g, or c

<400> 200

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gtgtcttcgt caaattacag aagccaaatg ctgccatccg agactgtgac agagccattg 180
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gaaagtatga gcgaaaacgt gaagagcgag agatcaaaga aagaatagaa cgagttaaga 420
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aaccgatttt ttttatccaa tgtgaattat aaatgagata atccacagtt attcattgtg 2040
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ctgaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaggggggg gg 2742

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&lt;210&gt; 201

&lt;211&gt; 1417

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 201

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cccatctttaa agaacagaca tgaaaaagta caagagaatt gtattgatct tgttggtcgt 240
attgctgaca ggggagctga atatgtatct gcaagagagt ggatgaggat ttgctttgag 300
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ctcgaggggg gcccgtaccc aattcgccgt atagtga 1417

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&lt;210&gt; 202

&lt;211&gt; 1512

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (855)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1512)

<223> n equals a,t,g, or c

<400> 202

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cccactgtgc tgccyggctc cccagcaag acccgggggc agatccaggt gattctcggg 180
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aaaaaaaaa an 1512

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<210> 203

<211> 419

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (384)

<223> n equals a,t,g, or c

<400> 203

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tgggcagggg cccgctggcc tgggtgcttg cgctgtgcgg ctggggcgtg catggcccc 240
aggggcacgc argctgaaga aagtccttct gtgggcaacc cagggaatat cacaggtgcc 300

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cggggactca cgggcaccct tcggtgtcag ctccaggttc agggagagcc ccccgaggta 360  
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<210> 204

<211> 2833

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2802)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2822)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2831)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2832)

<223> n equals a,t,g, or c

<400> 204

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anaaaaaaaa nna 2833

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<210> 205

<211> 5830

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5584)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (5585)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (5821)

<223> n equals a,t,g, or c

<400> 205

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&lt;211&gt; 755

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

<221> misc feature  
 <222> (368)  
 <223> n equals a,t,g, or c

<400> 206

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<210> 207

<211> 1996

<212> DNA

<213> Homo sapiens

<400> 207

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<210> 208

<211> 1668

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1505)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1565)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1598)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1620)

<223> n equals a,t,g, or c

<400> 208

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<210> 209

<211> 2250

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (23)

<223> n equals a,t,g, or c

<400> 209

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<210> 210

<211> 838

<212> DNA

<213> Homo sapiens

<400> 210

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tatttgaaac agttttcctt tattgagtac caagccatgt aatggtaact tggactttta 720
taaaaggga atgagtttga actgaaaaaa aaaaaaaaaa aaactcatac agactgaagc 780
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```

<210> 211

<211> 1213

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1206)

<223> n equals a,t,g, or c

<400> 211

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gccacgcgt ccggcaggaa ccgcggctgc tggacaagag ggggtgcggtg gatactgacc 60
tttgctccgg cctcgtcgtg aagacacagc gcatctcccc gctgtaggct tcctcccaca 120
gaacccgttt cgggcctcag agcgtctggt gagatgctgt tgccgctgct gctgctgcta 180
cccatgtgct gggccgtgga ggtcaagagg ccccgggcg tctccctcac caatcatcac 240
ttctacgatg agtccaagcc ttacacctgc ctggacggtt cggccaccat cccatttgat 300
caggtaacg atgactattg cgactgcaaa gatggctctg acgagccagg cacggctgcc 360
gtgcctaata gcagcttcca ctgcaccaac actggctata agcccctgta tatccccctc 420

```



```

aaccgggtca acgatggtgt ttgtgactgc tgcgatggaa cagacgagta caacagcggc 480
gtcatctgtg agaacacctg caaagagaag ggccgtaagg agagagagtc cctgcagcag 540
atggccgagg tcacccgcga agggttccgt ctgaagaaga tccttattga ggactggaag 600
aaggcacggg aggagaagca gaaaaagctc attgagctac aggctgggaa gaagtctctg 660
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ccagccctgt cctgccacc cctcctagtg gggactagtg aatgacttga cctgtgacct 1140
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aaaaaaaaaa aaa 1213

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<210> 212

<211> 969

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (922)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (955)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (958)

<223> n equals a,t,g, or c

<400> 212

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gttgatgta aaagctaagg aaaccttttc ttttggaaga tcagtataaa catgctgctt 180
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taaataatac tcagagtta atgagggctt ttcacatgga acaagctttt gagaggcct 300
gtgttgctga agttttcgcc cttggattgc tggggtgata ttggtgacaa actctgtagg 360
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tgacttgatt tgttataagt ttggaagggt atagtgttgg caccattctt attgatcaca 480
cttttaggga ttcttgaaga aaagggaagc aaaacataca cacacacccc cacccaatct 540
aacagcgtat tcaagcagat tccacgaatc ctccggcccag gtttaataaa ggcaggaaag 600
ttcccttccc tgctcacaca caacgaaaac atggtggcca aagtggatga ggtgaagtcc 660
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atgacagacg atgagcttgt gtataacatt cacctggctg tcaacttctt ggtgtcattg 780
ctcaagaaaa actggcagaa tgtccggggc ttatatatca agagcaccat gggcaagccc 840
cagcgcctat attaaggcac atttgaataa attctattac cagttaaaaa aaaaaaaaaa 900

```

aaaaaaaaa aaaaaaaaaa anaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaanccncg 960  
 gggggggggg 969

<210> 213

<211> 1694

<212> DNA

<213> Homo sapiens

<400> 213

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 gcgatggcca aggtgtcggg gctgaacgtg gcggtcctgg agaaccggag ccctttccac 180  
 agccccttcc gggtcggagat cagcttcgag tgcagtgaag ccctggcgga cgacctggag 240  
 tggaaatca tttatgttgg ctcggtgag agtgaggaat ttgatcagat cctagactcg 300  
 gtgctggtgg gccctgtgac agcagggaga cacatgtttg tctttcaggc cgacgcccc 360  
 aacccatccc tcatccaga gactgatgcc gtgggtgtga ctgtggtcct catcacctgc 420  
 acctaccatg gacaggagt catccgagt ggctactacg tcaacaacga gtacctcaac 480  
 cctgagctgc gtgagaaccc gcccatgaag ccagatttct cccagctcca gcggaacatc 540  
 ttggcctcga acccccgggg gaccgccttc catatcaact gggacaacaa catggacagg 600  
 ctggaggcca tagagacca ggaccctcc ctgggctgag gcctccact caactgcact 660  
 cctatcaagg gcttggggct ccctggctgc atccctggcc tcctccctga gaactccatg 720  
 gactgcatct aactgcagga acccagagt tcccagcac cggggagggg caaccaggcc 780  
 tcccagcgag tcctgcaggg cccatctaga ggaytttggg ggccatcagc ttgcaatcca 840  
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 ctttctgtgc aatcacagcc accttctgt tatctcctaa atggatctgg cttttcctgg 1380  
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 ctctgtgccc tgggtcccctt gctgccatgt ggatgctgtt gtgattgctg tttgtatatt 1620  
 atcaaaatgt ttttatatta aaaatgtttg gtctgaaaat taaaagcact tcatttgaaa 1680  
 aaaaaaaaaa aaaa 1694

<210> 214

<211> 1210

<212> DNA

<213> Homo sapiens

<400> 214

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 tggttaccat tatccccaac ttcagtctgg acaagatcta cctcatcgga ggggacctgg 180  
 ggctttttta ccctggttta cccgtggaag tgcccctgtg gctggcgatt aacctgaaac 240  
 aaagacagaa atgtcgctg ctccctccag agtggatgga tgtagaaaag ttggagaaga 300  
 tgagggatca tgaacgaaag gaagaaactt ttaccccaat gccagccct tactacatgg 360

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aacttacgaa gctcctgtta aatcatgctt cagacaacat cccgaaggca gacgaaatcc 420
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tccagcctct ggagagtact cagtctcagg acttctagag aaaggcctgg tgcaggcggc 660
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aacacttctg atgcatgaaa aatgtgtgat ggtgcaagga atggattcag gatgttgttg 780
gagaaacaag tttgtgatta gtccttaaaa cttagctccc tgggacattc ttcaattcca 840
catctgtttc tagaaaccag ccctttttcc cccactttt gagaaataaa aaagccttag 900
gtaaataagt cattctccct agcagagcca cttgggtctc ctgcatggaa gccatcacac 960
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<210> 215

<211> 1776

<212> DNA

<213> Homo sapiens

<400> 215

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gtcgggcttc ctcggcggct gaggtctctc gccttggcgg gcgctggctg cttttgcatt 180
ttagggctctg aagcggcgac gcgaaagcat ttgccggcga ggaaccactg tgggctctct 240
gactcctctc cgcagctgtg gcccgaaacc gatttcagga atccgccaaag gaaggcgtct 300
aaggccagct tagactttta gcgttacgta accgatcgga gattggctga gaccctggcg 360
caaatctatt tgggaaaacc aagtagacct ccacacctac tgctggagtg caatccaggt 420
cctggaatcc tgactcaggc attacttgaa gctggtgcca aagtggttgc gctcgaaagt 480
gacaaaactt ttattccaca tttggagtcc ttaggaaaaa atctggatgg aaaactacga 540
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attattaagc ttagaaagta agcaaaactg atttactggg ttgcctttca gtttgttgaa 1680
atgtattgtc aagtactgta caatgaaatt gtttaaatat taatatgatt taagcttttt 1740

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agaaattaaa atatttttaaa taagaaaaaa aaaaaa

1776

<210> 216

<211> 1418

<212> DNA

<213> Homo sapiens

<400> 216

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gccatacaga attgtgtatt caccagcatc atgaaacagt tgtggtcttt tgagttgatc 180
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ctcctcccac cccccaaaaa aataaaaaaa ccacaaaaaa caaaaaaaca aaactaaggc 300
acttcactta gagactggag tcctgcttat aatcatgcat ataaccttta ctttgatgga 360
tctggccaga ggggtgttgg agcccagccc acccacatac cagtcaagct cttaggggag 420
cagaagaaaa gcaggaagaa tttaaatgtt taattttttt tttaaattga cttttctagt 480
tattaaaagt tgcttgtttc agcagtgata ttgtataaag aacatcttgt aagatactcc 540
tgacatcttg ctttagcaca tgtacagtac agtttctatg ataatgtgtt tgctctaact 600
tccctggctt ctccttcagc ccattccact tcctctagag cagttgggtt ggaggctcat 660
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ttaaagggtg aacttgtaat aaattggaat ttcaaataaa cctcatgtac ttgtgtttat 1380
aaagaagaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaa 1418

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<210> 217

<211> 2200

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2188)

<223> n equals a,t,g, or c

<400> 217

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cacgagtgcc gccagcatgt ctgacaaact gccctacaaa gtcgccgaca tcggcctggc 120
tgcttgggga cgcaaggccc tggacattgc tgagaacgag atgccgggccc tgatgcgtat 180
gcgggagcgg tactcgccct ccaagccact gaaggcgccc cgcacgctg gctgcctgca 240
catgaccgtg gagacggccg tcctcattga gacctcgtc accctgggtg ctgaggtgca 300
gtgggtccagc tgcaacatct tctccacca ggaccatgcg gcggctgcca ttgccaaaggc 360
tggcattccg gtgtatgcct ggaagggcga aacggacgag gagtacctgt ggtgcattga 420

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gcagaccctg tacttcaagg acggggccct caacatgatt ctggacgacg ggggcgacct 480
caccaacctc atccacacca agtaccgcga gcttctgccg ggcatccgag gcattctctga 540
ggagaccacg actgggggtcc acaacctcta caagatgatg gccaatggga tcctcaagggt 600
gcctgccatc aatgtcaatg actccgtcac caagagcaag ttgacaacc tctatggctg 660
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<210> 218

<211> 1853

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (890)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1794)

<223> n equals a,t,g, or c

<400> 218

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tggtgggcgc cgtgaagagc cttcaggcgc tgggcgagg catcgaggct gaacttcggt 180
ccaccaagca ctgggagctt actgcggagg gcgaggagat tgcccgagg ggcagccatg 240

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gcccccaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1853
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<210> 219

<211> 1093

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1090)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1091)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1092)

<223> n equals a,t,g, or c

<400> 219

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```

```

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ccggaagccc ctcaagtcgg gtatgaagga gctggccgtg ttccgggaga aggtcactga 300
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gatctccacc atgcgccctt cggatgagcg gggccctctg gagcacctct actccctgca 480
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aaaaaaaaan nna 1093

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&lt;210&gt; 220

&lt;211&gt; 2155

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 220

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<210> 221

<211> 1264

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (17)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (22)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (125)

<223> n equals a,t,g, or c

<400> 221

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atgataacag aaactaaggg aacagtgttg ataaagactg ctgaagaatt gatgaatttt 240
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```



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ggtgctacag ctcttcctag attgacacct cctgtccttg aagaaatggg acactgtgac 480
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gatggcgcca tttctaccat agtacttcga ggctctacag acaatctgat ggatgacata 600
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&lt;210&gt; 222

&lt;211&gt; 2085

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 222

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<210> 223

<211> 2921

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (1609)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2919)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2920)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2921)

<223> n equals a,t,g, or c

<400> 223

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<210> 224

<211> 4395

<212> DNA

<213> Homo sapiens

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<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (4382)

<223> n equals a,t,g, or c

<220>

<221> misc feature

&lt;222&gt; (4391)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 224

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<211> 3035

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2911)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2959)

<223> n equals a,t,g, or c

<400> 225

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&lt;210&gt; 226

&lt;211&gt; 1511

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 226

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&lt;210&gt; 227

&lt;211&gt; 2239

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2238)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 227

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&lt;210&gt; 228

&lt;211&gt; 2346

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 228

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<210> 229

<211> 2246

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2235)

<223> n equals a,t,g, or c

<400> 229

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&lt;210&gt; 230

&lt;211&gt; 2002

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 230

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tgcccgggag caccacctgc gcctgtctgt ctaccacctg cacccttctt tgcagcgcca 720
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```

```
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tatttattct atttatgggt cccgggaagt tgtttggtga aggaagcccc tccctgggca 1860
ttttctgcct atgctggaat agctccctct tctggctcct gctcaggggg ctgggatttt 1920
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aaaaaaaaaa aaaaaaaaaa aa 2002
```

<210> 231

<211> 994

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (394)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (853)

<223> n equals a,t,g, or c

<400> 231

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gccgagggcct ggggttacaag cagcaagtgc gcggttgggg ccactgcgag gccgttttag 180
aaaactgttt aaaacaaaga gcaattgatg gataaatcag gaatagattc tcttgaccat 240
gtgacatctg atgctgtgga acttgcaaat cgaagtgata actcttctga tagcagctta 300
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tttgttcgta cacctgaaag tggtcacgca agtnattcat caagtgactc atcttttgaa 420
ccaataccat tgactataaa agctattttt gaaagattca agaacaggaa aaagagatat 480
aaaaaaaaaga aaaagaggag gtaccagcca acaggaagac cacggggaag accagaagga 540
aggagaaatc ctatatactc actaatagat aagaagaaac aatttagaag cagaggatct 600
ggcttcccat ttttagaatc agagaatgaa aaaaacgcac cttggagaaa aattttaacg 660
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cacctgaaag aatcattgaa gcaaatgaat gttggtgaag atttagaaaa tgaagatttt 780
gacagtcgta gatacaaatt tttggatgat gatggatcca tttctcctat tgaggagtca 840
acgtaagtgg aantcatatg aaatactttg gtaatagggt ataaattaaa tttctatggt 900
aattgcttca tattttgcct ttaatatagt tatacttaaa taatgaacaa agatacagag 960
tatgacaatt gggattatta cagttgagcc aagc 994
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<210> 232

<211> 486

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature  
 <222> (49)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (440)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (485)  
 <223> n equals a,t,g, or c

<400> 232  
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 ctgccaaagat gtcttgccag cagaaccagc agcagtgcca acccccaccc aagtgtccct 180  
 cacccaagtg tccccaaag agcccagtag agtgctgcc tccagcttcc tctggctgtg 240  
 cccaagctc tgggggctgt ggcctagctc cgagggcggc tgcttctga accaccacag 300  
 gcgccaccac cgatgccggc gccagaggyc caactcctgt gacagggcag tggtcagcaa 360  
 ggcgrrgggt ctggstgckg cayggttctg ggggtgctg ctgatccaga tcctgatgct 420  
 gagacaagcg atctttggan gaaacaagaa ttcccaagag gccagaaca gccccatctg 480  
 gaagnc 486

<210> 233  
 <211> 2081  
 <212> DNA  
 <213> Homo sapiens

<400> 233  
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 taagtctttt ggaggacgaa caactggagg ttccagaaat ggctgctact accttaagcg 180  
 gtctgtctaca gtgtaacttt cttaccatgg acagtcctat gcagattcat tttgagcaac 240  
 tttgcaaaac aaaactacct aagaaaagaa agcgagaccc tggttctgta ggagatacca 300  
 ttccttctgc agagtgggc aaacgccatg ctgggggtgct aggacttggg gcatgtgttc 360  
 tttctagtcc ttacgatgtt cccacctgga tgccccagct cctcatgaat ctcatgtcac 420  
 atctaaatga tcctcagcct attgagatga ctgtaaaaaa aaccttatcc aatttccgaa 480  
 gactcaccat gacaactggc aggaacataa acagcaattc actgatgacc aactgcttgt 540  
 tctcaccgat cttcttgtgt caccatgcta ttatgcatag aaagatgact agtcctcact 600  
 tcaggctctt ttcatacaaaa attccacacc ctccaggtacc atctgtgggt gctctctgca 660  
 agtttttaaaa ctgcctctgc tgagctctca tcattttggg ggtttctgtg ttagatctcg 720  
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 ttccagaata ctgatcactt ttttttttga ggcatctgac aaagtcacaa agtctcagac 840  
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 aaacagttta cttggaatgg agaataccca tctgtaatac aggtcctgtc atttcattca 960  
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 tgggccataa atctgaagcc ttgagaacct tgggtctgga gagccatgaa gagggaagga 1080  
 aaagagggca agtctgaac ctaaccaatg acctgatgga ttgctcgacc aagacacaga 1140  
 agtgaagtct gtgtctgtgc acttcccaca gactggagtt tttgggtgctg aatagagcca 1200

```

gttgctaaaa aattgggggt ttggtgaaga aatctgattg ttgtgtgtat tcaatgtgtg 1260
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ctttacaact attttttgac cctctgaaaa ttattatact tcacctaaat ggaagactgc 1380
tgtgtttgtg gaaattttgt aattttttwa tttatttwat tctctctccc tttttatttt 1440
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aatgtctgaa cttttatgta acatttttgt gtgcctctct caatgctaac accacatgtt 1800
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tttttagtat ctacatgctg aatgactgaa tacagacctt aagacagcag tgstcctggg 1980
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```

<210> 234

<211> 516

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (490)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (498)

<223> n equals a,t,g, or c

<400> 234

```

cggcacgagg ggccaggggt cgggcctgcy cctccctcgg ctccctggcgc gggcctcggg 60
gagaggggtg gaagatgtct atggatgtga cattcctggg gacgggtgca gcatacccat 120
ctccaacccg ggggtgcctct gctgtgggtc ttccgtgtga aggcgagts c tggctctttg 180
actgtgggga gggaaacacag acacagctta tgaaaagcca acttaaagca gggagaatta 240
ccaagatctt catcacacac cttcatggag accatttctt tggccttcct gggctcctct 300
gcacaatcag cctgcagagt ggctccatgg tgtccaaaca gcctattgaa atctatggcc 360
ctgtaggctt cgggacttta tctggcgaac catggaactc tctcamacgg gagctggctt 420
tccattatgt ggttcatgaa ctggttccta cagcagatca atgtcctgca gaaggaacta 480
aaagaatttn cgcattgtnaa tagagcagac agtcct 516

```

<210> 235

<211> 1129

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (807)

<223> n equals a,t,g, or c

&lt;400&gt; 235

```

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gagaggaggg gcaggaccag atcttttgag agctgagggt tgagggcatt gagccaacac 180
acagatttgt cgctctgtc cccgaagaca cctgcacct ccatgcggas caagatgggg 240
aatggaactg aggaagatta taactttgtc ttcaaggtgg tgctgatcgg cgaatcaggt 300
gtggggaaga ccaatctact ctcccgattc acgcgcaatg agttcagcca cgacagccgc 360
accaccatcg gggttgagtt ctccaccgc actgtgatgt tgggcaccgc tgctgtcaag 420
gctcagatct gggacacagc tggcctggag cggtaaccgag ccatcacctc ggcgtactat 480
cgtggtgcag tggggggccct cctggtggtt gacctaacca agcaccagac ctatgctgtg 540
gtggagcgat ggctgaagga gctctatgac catgctgaag ccacgatcgt cgtcatgctc 600
gtgggtaaca aaagtgcct cagccaggcc cgggaagtgc cactgagga ggcccgaatg 660
ttcgctgaaa acaatggact gctcttcctg gagacctcag ccctggactc taccaatgtt 720
gagctagcct ttgagactgt cctgaaagaa atctttgcga aggtgtccaa gcagagacag 780
aacagcatcc ggaccaatgc catcacntct ggcagtgcc aggctggaca ggagcctggc 840
cctggggaga agagggcctg ttgcatcagc ctctgacctt ggccagcacc acctgcccc 900
actggctttt tgggtgcccct tgtcccccact tcagccccag gacctttcct tgcccttttg 960
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ctatcacaaa tacctctttt atctgtccac ccctcacaga ctaggacctt caaataaagc 1080
tgttttatat caaaaaaaaa aaaaaaaaa aaaaaaaaa aaaaaaaaa 1129

```

&lt;210&gt; 236

&lt;211&gt; 1045

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (973)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1001)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1014)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 236

```

atcctcaaag gcagctcagg ctccgtgtgg ctgcgcaacc tgcaactggg cctcttcggc 60
acagcactgg gcctggtggg gctctggtgg gctgagggtg ccgctgtggc caccgtggt 120
ttcttttttg ggtacacacc tgctgtctgg ggcgtggtgc tcaaccaggc cttcggcggg 180
ctactggtgg ctgtggttgt caagtacgct gacaatatcc tcaagggtct tgccacctcc 240
ctgtccattg tgctgtccac tgttgccctc attcgctctt ttggcttcca cgtggaccca 300
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gggtgcagyc aagccatagc ctctgcctct gccctccgct ccgggcccctg cgttcaccag 420
cagcctcccg ggcagccacc accaccgcag ctgtcttccc accgtggaga cctcatcacg 480

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```

gagccctttc tgccaaagtc agtgctggtg aagtragggc tggcagcaat ggggggacac 540
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cggggcctgg ctctctctggg tttgggagat ggtcttttct cccagggtcac tgagacttct 660
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gttgggggta ttgtcattca aggccttttt tttgtctgct ccctccccga ccctgtgccc 840
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tggacaaaac tccgagtctt aggaatgacg atgcctactg tggggtagtg ccatagttgg 960
gcttttctcc ttncacgttg atatgtatag tcgctttggg nctgccagtt cttntacttg 1020
aatgcttctg gagccaggaa aggca 1045

```

<210> 237

<211> 690

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (666)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (678)

<223> n equals a,t,g, or c

<400> 237

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aagctgtggc tctgactctg caggaggaca gagcatccct gacgctttca ggggggccct 120
cggcactggc ctttgacctc tccaaggtag caggcccaga ggcagccccc aggctgyggg 180
cgctgacact gggcctggca aaacgcgtgt ggagcctgga gcggcgactg gcagctgcag 240
aagagacagc tgtcagcccg aggaagagcc cccggcctgc agggcctcag ctcttcttac 300
cagaccacaga tccccagaga ggtggccctg gacctggagt caggaggcgg tgtccaggag 360
agtcgctcat caaccccggt ttcaagagta agaaaccagc tgggtggcgtg gacttcgatg 420
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agtcttttag gcccccacat gagaccccc gccaccacct ccacctgcct gtcttgggcc 540
aggactaaca cggctcctca aattccttcc ctgtcaaata aacagctccc ttggttgga 600
aaaaaaaaa aaaaaaaaaa agtttttttt aattttaagg cggggccaaag ttttttttcc 660
tttttngttg aagggttnat tttttagttt 690

```

<210> 238

<211> 1873

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (568)

<223> n equals a,t,g, or c

<400> 238

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aagctctctg gaccttggag caggcctgcc gccttcatgt ccactctcct catcaatcag 120
ccccagtatg cgtggctgaa agagctgggg ctccgcgagg aaaacgaggg cgtgtataat 180
ggaagctggg gaggccgggg agaggttatt acgacctatt gccctgctaa caacgagcca 240
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gaagcatgga aaatctgggc agatattcct gctccaaaac gaggagaaat agtaagacag 360
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agtttccagta aaggtgtttt agatgaacat cccttaattt gaggtgttcc agcagctgtt 1680
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cagtgactaa tccccctatg accccaaagc cctgattaaa tcaagagatt ccttttttaa 1800
aaatcaaaat aaaattgtta caacatagcc atagtacta aaagatgagt taggtggatt 1860
tttattatgg tca 1873
```

<210> 239

<211> 905

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (873)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (874)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (897)



<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (898)

<223> n equals a,t,g, or c

<400> 239

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gctgtgccag aagcgggagg agctgtgccg gcagatccag gaggaggagg acgagaagca 180
gcggctgcag aatgaggtga ggcagctgac agagaagctg gcccgcgta acgagaacct 240
ggcacgcaag attgcctctc gcaacgagtt cgaccggacc atcgcggaga cggaggccgc 300
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gaacctgacc aaggctacag cccagacca gaaaagtagc ggcggcaggg acagctgacc 420
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cagagcatct ttgttcttca cggcagcagc taccttccct cactgtctca ggtgccgaga 540
ggggcaggtg ccagcctcca ctggcatcag tgacaagccc agggcacagc ccaccgggg 600
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gggcttgtct ctgtggcacc cacactcctg ccctgccagg gaggtcttgg ttgtctgagc 720
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ggaggacagg ggttctcctt caccacagaa cccaaacctc aggtctcacc cctgtggcct 840
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ggggg 905
```

<210> 240

<211> 1484

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1457)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1471)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1480)

<223> n equals a,t,g, or c

<400> 240

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&lt;210&gt; 241

&lt;211&gt; 1521

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 241

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ggtttgtgtg tttctgtttt gtttctctcc ccctgcaggg ctgtttkcg ggtggggtgg 180
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<210> 242

<211> 1144

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1093)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1105)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1106)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1139)

<223> n equals a,t,g, or c

<400> 242

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 tcccagagga gcaggaatta gaagcttatg tagatgatat agatattgat agtgatttca 180  
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 tcagccgtgt tgaaatcctt gtctcctgta gaccagtggt aacccataag taattcagaa 480  
 ccatcaatga attcagatat gggaaaagtc agtaaaaatg atactgaaga ggaaagtaat 540  
 aaatccgccca caacagacaa tgaaataagt aggactgagt atttatgtga aaactctcta 600  
 gaaggtaaaa ataaagataa ttcttcaaat gaagtcttcc cccaaggagc agaagaaaga 660  
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 ttactatat ataaagctaa gatgtggatt tacaggaaga accctgggtt gaataactga 1080  
 tskgaaatta ggnaaaactt gtccnnggca tttcccgttg aaagttcccc cttaaaganc 1140  
 cccg 1144

<210> 243

&lt;211&gt; 934

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 243

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cccgaacacc atcatgtgga gacatttgca attttcctcc taaaattgcc catgggcatt 180
ataaacaatc tagttcatac agcttttttca aagaagagat tatatatgaa tgtgataaag 240
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ataaggatca gtatgttgag cctgaaaatg tcaccatcca atgtgattct ggctatgggtg 420
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aaattgaaca actggaacta cagagagaca gcgcaagaca atccactttg gataaagaac 660
tataattttt ctcaaaagaa ggaggaaaag gtgtcttgct ggcttgctc ttgcaattca 720
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aatgtatgta taaaaaaaaa aaaaaaaaaa tcga 934

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&lt;210&gt; 244

&lt;211&gt; 915

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (210)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (243)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (244)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 244

```

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gaccaccacc agctgcgctc actgactggc ctcatccgaa acctgtctcg gaacgctagg 180
aacaaggacg agatgtccac gaagggtgtn gagccacctg atcgagaagc tgccrggcas 240
gtnnnggtga gaagtygccc ccagccgagg tgctgggtcaa catcatagct gtgctcaaca 300
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```

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gtggggggtg gctgtggcct ggcagtatct tgggtagacc agcactggga ataaagatgg 840
ccatgaacag tcaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 900
aaaaaaaaaa aaac 915

```

&lt;210&gt; 245

&lt;211&gt; 1276

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 245

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tgcattgtgt agaatttaat ccctttgaga atggggattc aggaaacctt attgcatatg 240
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&lt;210&gt; 246

&lt;211&gt; 3366

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 246

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<210> 247  
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<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1259)  
<223> n equals a,t,g, or c

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aaaaagaaga tacctattaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2148

<210> 248  
<211> 2225  
<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (14)

<223> n equals a,t,g, or c

<400> 248

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tatggtttgt cgtcagtcct ttccatgcgt ccatacctct ggtggkaaga agtacatcac 180
tcaggggcag ctgcttcagt ttgtgctgac aatcatccag accagctgcg gggtcactctg 240
gccgtgcaca ttccctcctg gttggttgta tttccagatt ggatacatga tttccctgat 300
tgctctcttc acaaacttct acattcagac ctacaacaag aaaggggcct cccgaaggaa 360
agaccacctg aaggaccacc agaatgggtc catggctgct gtgaatggac acaccaacag 420
cttttccacc ctggaataca atgtgaagcc aaggaagctg cggaaggatt gaagtcaaag 480
aattgaaacc ctccaaacca cgctcatctga ttgtaagcac aatatgagtt gtgccccaat 540
gctcgttaac agctgctgta actagtctgg cctacaatag tgtgattcat gtaggacttc 600
tttcatcaat tcaaaacccc tagaaaacgt atacagatta tataagtagg gataagattt 660
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tatacaacac tgctgttgcc ttattagtta taacatgata ggtgctgaat tgtgattcac 780
aatttaaaaa cactgtaatc caaacttttt tttttaactg tagatcatgc atgtgattgt 840
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catggcatcg gtttacattt accttatcaa acctagaatg tgtatattta taaatgtatg 2040
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cattcaatag ttagtctgtc aagtgtgctt agctcacctg gatataccta cattgttaaa 2160
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aaaaa 2225
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<210> 249

<211> 1204

<212> DNA

<213> Homo sapiens



<220>  
 <221> misc feature  
 <222> (1197)  
 <223> n equals a,t,g, or c

<400> 249

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ascactcagg ctggctctgg ggggtggggct gtaggggaaa gtgctaaagc cgctgagtga 120
agtaagaact ctgctagaga ggaaatggct gcttcatcat catcctcctc agctgggtggg 180
gtcagtgga gttctgtcac tggatctggg ttcagtgtct cagaccttgc cccaccacgg 240
aaagcccttt tcacctaccc caaaggagct ggagagatgt tagaagatgg ctctgagaga 300
ttcctctgcg aatctgtttt tagctatcaa gtggcatcca cgcttaaaca ggtgaaacat 360
gatcagcaag ttgctcggat ggaaaaacta gctggtttgg tagaagagct ggaggctgac 420
gagtggcggt ttaagcccat cgagcagctg ctgggattca cccctcttcc aggttgatac 480
tgcttgatg gtcacctctg gtgcgcagca agtgcaaagc cagtggggga ctttctcaca 540
gcttacatag ccatccagag atccacagct acgtcactga attgttaatg cacatttgta 600
cttggtttct ctgtatctat tcacaggcaa caaatactta tatgtgtgat ctttcaggga 660
atgttttgtt tatttgtttt taaaagtatt gggaaatcaga ttaagacaat cagtttcaga 720
gaaccaggag gtttgggggt aagagatact caaaaatttt cacaagccaa gtagggcata 780
tatcagattt ggccaaactga atggcgtctg tcctgtcatc catatgggtg ctggaaatat 840
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ctcttataga catgccaaat gctggcaaaa agaagtgttt tttggatatg gcagcacttg 1080
taaaaaataa gcagtaagca aaatcctttt aaacacagaa atcctgagtt cttctcattg 1140
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aaaa                                              1204

```

<210> 250  
 <211> 1314  
 <212> DNA  
 <213> Homo sapiens

<400> 250

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ccttcgcttg ctgagagtca ttggaaaaac cactgaactg gctacttttt aattactatt 180
tgacaacctg ctttcagctc tcagttaata agcaccgaca tatgtttgta aaacaagttg 240
atatggatca tgtcatgaag gctaaatcca tcagagagtt tgataagcga ttcacttcag 300
tcatgttttg ataccaaaca attgatgatt attatactga tgccagtcgg agtcctagac 360
tgaagtcatg aggaattcca gtattgtgtc taaattctgt ggatgatgtt ttctcaccga 420
gtcatgctat tccaatagaa actgctaagc aaaatcctaa tgttgctttg gtccttactt 480
cttatggagg ccatattggg tttctggagg gaatctggcc aagacagtcc acttacattg 540
atcgtgtctt caagcaattt gtgcaagcca tgggtgagca tggacatgaa ctctcttaac 600
atgtagttct ttgggtgcat tttgtctgaa ccacaattgt gaaggcagct cagcttagtg 660
cacaaatttt aactgttgta tataaagcaa ataagccagc agatgggtga agaggtccag 720
aatgatatgc aaaaactact ttttagagaa acaaaacaac tttgtagcaa caaattaaat 780
atagtattag attgttactt acgtagattt tatttttact atgccttacc aagtacatcc 840
ttaaacaaag tagtatgtac atgaaattgc acttaaccaa aactattgtg taaaacaaat 900
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```

```

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ggtacattcc taaggggtatt tatagttgat gataacatga aaactgaaat aagataaaat 1080
acaacgtgct aaatctttta tgtattctaa ctttaaaaga caagtgaac aaagtttagac 1140
tgacttctat atgtgctctt ttactctgat aatattaaat taggactaac ttatgtttta 1200
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```

<210> 251

<211> 1159

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1132)

<223> n equals a,t,g, or c

<400> 251

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ggatgggtctc gatctccagg atggtctcga tctcctgacg tcgtgatcca cccgcctcgg 180
cctcccaaaa tgctgggatt acaggtgtga gccactgtgc cgggccaaaa gaacagaaat 240
tatttttatcc tgaagtaagc tgtttatatt tgggattata ctgaacctat ttgtccaata 300
acctgagttt tcaaataaatt ttagttctat aagtactata attatataaa tattaatgaa 360
ttcagattag ctgaaaggaa aaaaagtaga agcctgacta cttggtgcta actactaaag 420
attttggcag aatcaatgtt ggatttggct ttccctgtcc ttcccatgc cagcccccca 480
gagtgttctg ccttgtgctg cctcccttca cckggagtgc cacaccctc tctctgccag 540
ttcagctctt cattcttcaa ggctgacct tgtctgacct ttgtgcctct aaaccctgg 600
gccccacctc tcttgggtcc tatgtcaggt gatgtttgtg tttttggtta tgccatctc 660
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gaagttgggg ttgaggagag ccagatggct ggagtgggta tttgaaggkc tttctgtcac 1080
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cagaccatct caactcaga 1159

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<210> 252

<211> 2488

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<220>

<221> misc feature

&lt;222&gt; (64)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2334)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 252

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ccngngacgc gtgggttgct cggcagcttg caaagcctga caacaccttg tttgtaaaca 120
gaacactttt tgatcaggtc cttgaattcc tttgtagtcc tgacgatgac tcccgacact 180
ctgaaagaca gcaggtcctt ttagaattgc tgcaggctgg aggcatagtt caatttgaag 240
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aaggtattca tgtaaataca gaattactgc aaatatctcc ttgtatcaca gaggcagttca 660
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<210> 253  
 <211> 1554  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (6)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (81)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1496)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1523)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1535)  
 <223> n equals a,t,g, or c

<400> 253  
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 cttcgcgggt gctcaagatg aaccgactct tcgggaaagc gaaacccaag gctccgccgc 180  
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gttgtgtcct gtgaacaagt cgttactgtg tccattattg gaatggaatt atcactactg 1320
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aattatgaat atttcttgat atttaatgta taggacattt atttatactc aataaatatt 1440
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aggatcccc gaggggggCC cangcttacg cgtgncatgc gacgtccaaa gccc 1554

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<210> 254

<211> 1506

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (43)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1492)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1501)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1506)

<223> n equals a,t,g, or c

<400> 254

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ctttgtagct gagaacggct tgtttattgc tacaaagact ctattgacat tggtagcttc 180
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tttgtgtctg ctgttgtgtg aagattgaca tttaccatga ttttcttag ttactgcaga 1440
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ncccg      1506

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<210> 255

<211> 654

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (8)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (632)

<223> n equals a,t,g, or c

<400> 255

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cgtctgccat cggcgccatc ctgcaatcta agccacaatg gtgcgcatga atgtcctggc 180
agatgctctc aagagtatca acaatgccga aaagagaggc aaacgccagg tgcttattag 240
gccgtgctcc aaagtcatcg tccggtttct cactgtgatg atgaagcatg gttacattgg 300
cgaatttgaa atcattgatg accacagagc tgggaaaatt gttgtgaacc tcacaggcag 360
gctaaacaag tgtgggggtga tcagccccag atttgacgtg caactcaaag acctggaaaa 420
atggcagaat aatctgcttc catcccgcc gtttggtttc attgtactga caacctcagc 480
tggcatcatg gaccatgaag aagcaagacg aaaacacaca ggagggaata tcctgggatt 540
ctttttctag ggatgtaata catatattta caaataaaat gcctcatgga caaaaaaaaa 600
aaaaaaaaaa aaaaaagggs ggsaggctag anggtccaag cttacgtacg cgtg      654

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<210> 256

<211> 1992

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (558)

<223> n equals a,t,g, or c

<400> 256

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gctcgccata cacctgcgca acgccatgac caccgcgaag aaggaaacat accagtctgt 60
gtacaactgg cagtatgtgc actgcctctt cctgtggtgc cgggtcctga gcactgcggg 120

```

```

ccccagcgaa sccctccagcc cttggtctac ccccttgccc aagtcatcat tggctgtatc 180
aagctcatcc ccactgcccc cttctacccg ctgcgaatgc actgcatccg tgccctgacg 240
ctgctctcgg ggagctcggg ggccttcac cgggtgctgc ctttcatcct ggagatgttc 300
cagcaggtcg acttcaacag gaagccaggg cgcagtagct ccaagcccat caacttctcc 360
gtgatcctga agctgtccaa tgtcaacctg caggagaagg cgtaccggga cggcctggtg 420
gagcagctgt acgacctcac cctggagtac ctgcacagcc aggcacactg catcggttc 480
ccggagctgg tgctgctgtg ggtcctgcag ctgaagtcgt tcctccggga gtgcaagggtg 540
gccaaactact gccggcangt gcagcagctg cttgggaagg ttcaggagaa ctccggcatac 600
atctgcagcc gccgcccagag ggtttccttc ggcgtctctg agcagcaggc agtggaagcc 660
tgggagaagc tgacccggga agaggggaca cccytgacct tgtactacag ccactggcgc 720
aagctgcgtg accgggagat ccagctggag atcagtgga aagagcggct ggaagacctg 780
aacttccctg agatcaaacg aaggaagatg gctgacagga aggatgagga caggaagcaa 840
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tcttcagggt ccggggcgga ggcaggcgca ctgtcctctt gtctgccagc cgcaccgggt 1860
caccggggag gatattcggc agcccgggca gtcgcagatc ggaggatgca cctgcaggat 1920
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ccccaaagcgc tg
1992

```

<210> 257

<211> 2273

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2271)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2273)

<223> n equals a,t,g, or c

<400> 257

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ggcacgagct ggcgggggaag gagaggtcag gcgctccggg ctgccccgct aggtcggggc 60
cgcggcgtcc cccaccctaa gtcccacctc cgcccgggca tgggtacccg ggcgggcctg 120

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gctcggcctg ggcccactca ctggtccaga agcagctgta ggtgcccacc aagcccatga 180
cgacgctgct ggccagggtc cagccctatt caggcaggag ctgctcttct ggggtatcgc 240
gatccactta aggatgaggc agacttggtg acaagctggt ctgagcagcg cttccagagc 300
cagaactgag ccagtgaga gcgcaccctg gggcagcctg gattcctggg gtgtccccgg 360
cagccacaca cagccatgca ctacccaact gcactcctct tcctcatcct ggccaatggg 420
gcccaggcct ttcgcatctg cgccttcaat gcccagcggc tgacactggc caagggtggc 480
agggagcagg tgatggacac cttagttcgg atactggctc gctgtgacat catggtgctg 540
caggaggtgg tggactcttc cggcagcgcc atcccgtctc tgcttcgaga actcaatcga 600
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atggagagct atgtgtactt ctatcgttca cacaaaacac aggtcctgag ttcctacgtg 720
tacaacgatg aggatgacgt ctttgcccgg gagccatttg tggcccagtt ctctttgccc 780
agcaatgtcc ttcccagcct ggtgttggtc ccgctgcaca ccactcctaa ggccgtagag 840
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gacgtgatcc tgcttgggga cttcaatgct gactgcgctt cactgaccaa aaagcgctg 960
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atctgctata tcaaactcct tccctgaaac cagcaaacac cgggaaacat tttggctcat 1800
tataatccgg tgaacaatgc agtcaggcct gttataaccg ctgagcagcc acactcgac 1860
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gggacgctag aagggtcatg tgtaaactat aatcacatct atggtttgga accatcacc 2160
caaggtaaaa aaaaaataaa aggtattccc aggtatgttt ggcaaaataa aataaaggta 2220
attaaaaacc taaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaattttgcg ncn 2273

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&lt;210&gt; 258

&lt;211&gt; 1504

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 258

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ctgtactctg ccctagattg ttttagcttc tgttctgtaa tcatgagttt ggttggagat 60
attctccata gatgatcttc tactgaaatg cctaaagaag tcacaggctg gcttctgttt 120
tattcaggga ttttttttaa aagtcaatca gaaaagggat actggagctt cttcatgtat 180
gtaacagcat attaaactgg agacagtgat gaatcagcta caaaggtaat attgtattaa 240
aatcatgttt aagatagctg cttttatgtg tattttatat tgcatgcttt tgtaaaaaca 300
tgctgggtga tgaaagatta gttttagaga gaaaatgttc atctgtgcag aggatgcatt 360
ttcttccatt aattctggaa aaaacgttca cagttatata tatggtatct tgcaaaagga 420
ctattaatag aaccttttga gatgaattaa tgtaagaata ttttttaaat aggcttactg 480

```



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tcaaattgca actttttttt tagatacaga gtggaaaaca gtgctaagtc atttggcacc 540
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aaaaatgtat tttatcatta aatggcatta ttttaaaggg tgaaaaactg acacagtcaa 660
ttcagaaaat ggactgaagt ctgaataagg tcattgcatt taaaaagcat ataactgtac 720
ttgactgatg agggaggtgt tactttcatt gtatataggt cttatttcat aaacagatat 780
cctgtatcaa ataaaagtat ttgttatata tttgaagtta tgcattggaaa ggagtgtgtt 840
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tactatgaat gaatttggtt ggttttggtg ttgtacagct cacatgttta cactcagtc 960
gccctaattt cccctgaggg aatcgctttt taagtgatcc ttacagtggg gttttatgtt 1020
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ttcataatct atatttaaac aaaattacat cattgcatca tctttttctaa attcatctcc 1380
attaaaactt gccttaagct accagattgc ttttgccacc attggccata ctgtgtgttt 1440
gtttgtttta tttactttca caataaactt ctgtgtagta aaaaaaaaaa aaaaaaaaaa 1500
aaaa                                              1504

```

<210> 259

<211> 1792

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (107)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (487)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1306)

<223> n equals a,t,g, or c

<400> 259

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aattcggcac gagctacatc gggggactcc tctcagcctt ctacctgaca ggagaagagg 60
tgttccgaat aaaggccatc aggtgaggag agaagctcct gccggcnttc aacaccccca 120
cggaatccc aaaggcggtg gtgagcttca aaagtgggaa ctggggctgg gccacagccg 180
gcagcagcag catcttggtg gagtttgat ccctgcactt ggaattctta cacctcactg 240
aactctctgg caaccaggtc ttcgctgaaa aggtcaggaa catccgcaag gtcctcagga 300
agatcgaaaa gccctttggc ctctaccca acttcctcag cccagtgagt gggaactggg 360
tgcaacacca tgtctcagtt ggaggactcg gggacagttt ttatgaatat ttgatcaaat 420
cctggttgat gtcgggcaag acagatatgg aggctaaaaa tatgtactac gaagccttgg 480
aggcgantag agacctactt gctgaatgty tctcccgggg ggctgacctt cattgccgag 540
tggcgagggg ggattctgga ccacaagatg gggcacctgg cctgtttctc cgggggcatg 600
atcgcccttg gcccgaggat gccaaaggaag aaaagagggc ccactaccga gagctcgag 660

```

```

cccagatcac caagacgtgt cacgagtcac acgcccgcctc agacacccaaa cttgggcctg 720
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catcctccgg ccagaggttg tggagagcta catgtacctg tggcgacaga cccacaaccc 840
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agccggtttc tctgggatcc aagacgtgta cagtagcacc cccaaccacg acaacaagca 960
gcagagcttc tttctagcgg agacactaaa gtatctctat cttctgttct ctgaagatga 1020
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ctcagacagc tccggcagag ctggggcaga cactgacccc atctcctgcc gccgcctgg 1140
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cgaaggcccc atctcgggca gaccccagc agatgtgtcg gacaagcaac ttcttttctt 1260
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caaaggaccg gaggtttgca tatccgcccc ttgtatttga tttgcttctt tttggtttct 1440
tggtttttgt ttttgcttga ttttgctctt tctctacagt ttagttttgt cacaattaca 1500
catatagttt tcaaaatcat gcactttcta aaatggtgtc atcctgaaaa acaaaaccca 1560
gtgtttgcac acacacaaaa tcttgacccc gttatctata ttttaaagtc tttttgcca 1620
acactgaccc tatgttcaac tttgtgtcat ttacctata atttgaggag gggtttccct 1680
ttgggcctca gtgttacaaa ttactagtgc tattttcatt attattgtaa tggaaaaatc 1740
tgtggactag aataaaagag tttattgaat aagaaaaaaa aaaaaaaaaa aa 1792

```

<210> 260

<211> 2048

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (66)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (67)

<223> n equals a,t,g, or c

<400> 260

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gcgganntgg ggtcgcccga gttgggctgg ggaagccagg gacggaggtg tccggccgctc 120
acccttagag gagggcgtgc ggggtctgt tttgcatgcy agccaccctt ctggctgctc 180
ctgcgggttc cctgtccagg aagaagcggg tggagttgga tgacaactta gataccgagc 240
gtcccgtcca gaaacgagct cgaagtgggc cccagcccag actgcccccc tgcctgttgc 300
ccctgagccc gaggagggcg ggcgggccta ccaggcctgc actgccctac aggcactgag 360
tatacctgca agtgtacccc gtccaggaag ccctggccgt gctggagccc taygcgcggc 420
tgcccccgca caagcatgtg gctcggccca ctgaggtcct ggctggtagc cagctcctct 480
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ccctgagcct gaggctgccg tgctcttcgg ccagatggcc accgccctgg cgcactgtca 600
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ttccctgtgg gacaagcacg cgtgccacgc ctacgtggga cctgagatac tcagctcamg 780
ggcctcatat tcgggcaagg cagccgatgt ctggagcctg ggcgtggcgc tcttcaccat 840
gctggccggc cactaccctt tccaggactc ggagcctgtc ctgctcttcg gcaagatccg 900

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ccgcggggcc tacgccttgc ctgcaggcct ctcggcccct gcccgctgtc tggttcgctg 960
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gctgcgacag gacccgatgc ccttagcycc aaccgatcc catctctggg aggctgcccc 1080
ggtggtccct gatggactgg ggctggacga agccaggga gaggaggag acagagaagt 1140
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aaggagaaaa ggcagaagcc tgtgtggagt gtgctgtgta cacatctgct ttgttccaca 1320
cacatgcagt tcctgcttgg gtgcttatca ggtgccaaag cctgttctcg gtgctgggag 1380
tacagcagt agcaaaggag acaatattcc ctgctcacag agatgacaaa ctggcatcct 1440
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gccaaaggct ccaggcctct cccctgcaac tcaggaccca agcccagctc actctgggaa 1680
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gttctggaat gaggggtccag gcctgtcaac catggggctt ctgacctgag caccaagggt 1860
gagggacagg attaggcagg gtctgtcctg tggccacctg gaaagtccca ggtgggactc 1920
ttctggggac acttggggtc cacaatccca ggtccatact ctaggttttg gataccatga 1980
gtatgtatgt ttacctgtgc ctaataaagg agaattatga aataaaaaaa aaaaaaaaaa 2040
aactcgac                                     2048

```

<210> 261

<211> 1282

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1244)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1261)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1265)

<223> n equals a,t,g, or c

<400> 261

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ctcgtgtcgc cgccattttg ccgggggtttg aatgtgaggc ggagcggcgg caggagcggg 60
tagtgccagc tacgggtccgc ggctgggggtt ccctcctccg tttctgtatc cccacgagat 120
cctatagcaa tggaactcag cgatgcaaat ctgcaaacac taacagaata tttaaagaaa 180
acacttgatc ctgatcctgc catccgacgt ccagctgaga aatttcttga atctgttgaa 240
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atcaaagtat gtgcttcagt aacattcaaa aactatatta aaaggaaactg gagaattgtt 360
gaagatgaac caaacaaaaa ttgtgaagcc gatcgagtgg ccattaaaagc caacatagtg 420
cacttgatgc ttagcgagccc agagcaaatt cagaagcagt taagtgatgc aattagcatt 480
attggcagag aagatttttc acagaaatgg cctgacttgc tgacagaaat ggtgaatcgc 540

```

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gatgcctttg ctttgccctt gactaatctt ttttaaggcca ctattgaact ctgcagtacc 720
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gaagaggaag cgggcttatt ggagctctta aaatcccaga tttgtgataa tgccgcactc 960
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tgggaattta ctagttacaa cgggtcaaga ggttaaataat gatttggttg taagtaatgc 1080
aattcaatTT ctggcttcag tttgtgagag acctcattat aagaatctat ttgaggacca 1140
gaacacgctg acaagtatct gtggaaaagg ttattgtgcc taacatggga tttagagctg 1200
ctgatggaag aagcattgaa gtaattctga ggggttacag agngagatt tggaagggtc 1260
nggtnttggg actagacgca gg                                     1282

```

&lt;210&gt; 262

&lt;211&gt; 599

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 262

```

ggcacgagcc ccggcagagg cggargcgga gtcggcctga gaggtctctc gtcgctgcag 60
gcgcctcagc ccagccgcgt gccttggccc atggccgcct actcttaccg ccccgccct 120
ggggccggcc ctgggcctgc tgcaggcgcg gcgctgccgg accagagctt cctgtggaac 180
gttttccaga gggctcgataa agacaggagt ggagtgatat cagacaccga gcttcagcaa 240
gctctctcca acggcacgtg gactccctt aatccagtga ctgtcaggtc gatcatatcc 300
atgtttgacc gtgagaacaa ggccggcgtg aacttcagcg agttcacggg tgtgtggaag 360
tacatcacgg actggcagaa cgtcttccgc acgtacgacc gggacaactc cgggatgatc 420
gataagaacg agctgaagca ggccctctma gtttcggcta ccggtctctc kaccagttcc 480
acgacatcct cattcgaaag kttgacaggc argggacggg gcaratcgsc ttcgacgast 540
taatccaagg ctggcatggc ctgcagaggt ttacggatat attcaaagggt ttcggcacg 599

```

&lt;210&gt; 263

&lt;211&gt; 1261

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 263

```

ggcacgaggt tgttcggagc gggcgagcgg agttagcagg gctttactgc agagcgcgcc 60
gggactcca gcgaccgtgg ggatcagcgt aggtgagctg tggccttttg cgaggtgctg 120
cagccatagc tacgtgcgtt cgctacgagg attgagcgtc tccaccaggt aagtgggcaa 180
gaggcggcag gaagtgggta cgcaggggcg caaggcgcac agcctctaga cgactcgctt 240
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tcttctgtgc ttcaccatct acataatgaa tccagtatg aagcagaaac aagaagaaat 360
caaagagaat ataaagaata gttctgtccc aagaagaact ctgaagatga ttcagccttc 420
tgcactctga tctcttggtg gaagagaaaa tgagctgtcc gcaggcttgt ccaaaaggaa 480
acatcggaat gaccacttaa catctacaac ttccagccct ggggttattg tcccagaatc 540
tagtgaatat aaaaatcttg gaggagtcac ccaggagtca tttgatctta tgattaaaga 600
aaatccatcc tctcagtatt ggaagggaag ggcagaaaaa cggagaaagg cgctgtatga 660
agcacttaag gaaaatgaga aacttcataa agaaattgaa caaaaggaca atgaaattgc 720
ccgcctgaaa aaggagaata aagaactggc agaagtagca gaacatgtac agtatatggc 780
agagctaata gagagactga atggtgaacc tctggataat tttgaatcac tggataatca 840

```

```

ggaatttgat tctgaagaag aaactgttga ggattctcta gtggaagact cagaaattgg 900
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attaatatatt gactgttgag aattttactg ccgaagttaa cctccactag ttctttgtag 1020
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accctattgc attaaagtac aaatactatg tatttttaac ctatgatggt ttatgtgaat 1140
aggattttct cagttgtcag ccatgactta tgtttattac taaataaact tcaaaactcct 1200
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<210> 264

<211> 1020

<212> DNA

<213> Homo sapiens

<400> 264

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tcgtcactct aaagaaataa cttatgtaaa actcttagta accctgtttg tcttcaaagt 240
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aaaacaaacc gttcaacagg ttcccccaac cgcccacgcc acataaagaa cagacatata 960
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<210> 265

<211> 571

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (557)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (565)

<223> n equals a,t,g, or c

<400> 265

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atagatcgat ggttgacaat ccagagtggg gaacagccct acaagatggc tggtcgatgc 180
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tctggaggct gattttcctg ttctctgttc tccactggaa aggttgttta cgacaaacct 480
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aaaatttggg ggggggnccc cgtancccat t 571

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<210> 266

<211> 1350

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (204)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1313)

<223> n equals a,t,g, or c

<400> 266

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ctgccgagct cagaggagac cccagacccc tcccgagcc agagggctgg agcctgctca 180
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tggcrtgaag gacaaggtca cccttgtggt tggagcgtcc caggacatca tccccagct 720
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<210> 267

<211> 1319

<212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (7)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (61)  
 <223> n equals a,t,g, or c

<400> 267  
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 cctactgacc cggcgactga caggctccaa ctacccggga ctacgtatta gccttcgcct 180  
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 caacaagatt tcgagagacg ctgactgtcg ggcggtgggtg atctctgggtg caggaaaaat 420  
 gttcactgca ggtattgacc tgatggacat ggcttcggac atcctgcagc ccaaaggaga 480  
 tgatgtggcc cggatcagct ggtacctccg tgacatcatc actcgatacc aggagacctt 540  
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 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa gggggggggc 1319

<210> 268  
 <211> 3694  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (746)  
 <223> n equals a,t,g, or c

<400> 268  
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 ctgtgcaacc tgcccagcta caaggccaag atacgtgctt ttcaacatgc cttcagcact 180

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aatgactgct ccaggaatgt ctacattaag aagaatggct ttactttaca tcgaaacccc 240
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tggaagtgt ggtgggaggg ccctctgggc actgtggcag tgattggaat tgccacaaaa 360
cgggccccca tgcagtgcc aagttatgtg gcattgtgg gcagtgatga ccagagctgg 420
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aatggaggag agatctgctt atgggnaakt asaaccatga agtgactgtc acacatgcat 780
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ggaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaa 3694

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<210> 269

<211> 1242

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (31)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (46)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (460)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1233)

<223> n equals a,t,g, or c

<400> 269

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cgactgtgac gaatgatcgc tcggcaccca tcattcgatg agaggacagc caaggactct 600
cccgggcctc tccggttctc ccttgcgga tgaatgggcgc atcctgtctg ccacgtgctg 660

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acggtcggga agcttcagtg gagaggccta actctaattgt cgcctgctta agcaaatacat 720
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gtctaatacag cagctcagcc atttaaaata ttttcttcct attctgttca agaaacagta 840
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```

<210> 270

<211> 2057

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (22)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2053)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2054)

<223> n equals a,t,g, or c

<400> 270

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aaggaacatc ataatggaaa tttcacagac ccctcttcag tgaatgaaaa gaagaggagg 180
gagcgggaag aaaggcagaa tattgtcctg tggagacagc cgctcattac cttgcagtat 240
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaggaaaa 2040
aaaaaaaaaa aannaaa 2057

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<210> 271

<211> 960

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (31)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (951)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (956)

<223> n equals a,t,g, or c

<400> 271

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caatgtcacc tccgtcctgt ttaggaaaaa gaagtgtgac tactggatca ggacttttgt 480

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gacttcggaa cttaaaggaga acttcatccg cttctccaaa tctctgggcc tccctgaaaa 720
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acccatgcag ctgctcccca ggccaccccc ctgatggagc cccaccttgt ctgctaaata 900
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<210> 272

<211> 1167

<212> DNA

<213> Homo sapiens

<400> 272

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atattgatta caggatgagg tgcacctctg aggacggccg gatcttcatt ggcaccttca 240
aggcttttga caagcacatg aatttgatcc tctgtgactg tgatgagttc agaaagatca 300
agccaaagaa ctccaaacaa gcagaaaggg aagagaagcg agtcctcggg ctgggtgctgc 360
tgcgagggga gaatctggtc tcaatgacag tagagggacc tcctcccaa gatactggta 420
ttgctcgagt tccacttgct ggagctgccg ggggcccagg gatcggcagg gctgctggca 480
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<210> 273

<211> 2771

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (16)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (27)

<223> n equals a,t,g, or c

<220>  
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 <222> (42)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (64)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (2715)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (2717)  
 <223> n equals a,t,g, or c

<400> 273  
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 taggccgtcg ctttcgggtt ctctcatcgc ttcgtcgttc gccaatgttt gaggagaagg 180  
 ccagcagtcct ttcaggggaag atgggaggcg aggagaagcc gattggtgct ggtgaagaga 240  
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 cctgtggaat tagtcaaggc ctggccgaca acaccgttat tgctaaagta aataatgttg 540  
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 acatgtacct cgaagaaggg ggtgtgtcta gcaatgattt ctcttctctg gaggtttgt 780  
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 aaggcaaaagc agatatggag actctccaga gaatttatgg catttcattc ccagatccta 1080  
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tgaaaaagtt ttcaaattca attagataa ctagaattgg attatggtgt aaaaataaaa 2700
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taagccgaat t 2771

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<210> 274

<211> 1889

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (57)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (87)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (113)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1676)

<223> n equals a,t,g, or c

<400> 274

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gttcggaaac ctatcgatta cacagtnctg gatgatgtgg gccatggtgt cangcatgga 120

```

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aatagaccag cctgcaggaa ctggcacact gtcgagaaca aatcctccta ctcagaaacc 180
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ggaacctgtt aaacccccaa cagttcctaa tgactatatg accagtccctg ctaggcttgg 300
aagtcagcat agtccaggca ggacagcatc tttaaatcag agaccaagga cacacagtgg 360
aagtagtgga ggaagtggaa gtcgagaaaa cagtggtagc agtagtattg gcattcccat 420
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tcactgattt gctttaaaaa aaataaaaga taatgattta ttgcagaaaa aaaaaaaaaa 1860
aaaaaaaaaa aaaaaataaa aaaaaataaa 1889

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&lt;210&gt; 275

&lt;211&gt; 604

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 275

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tcctgccatc ctctcaacag ctctgtgggg tgggtcctcc ccataacctg atgcaccgac 180
cacacagtgg aaagtgacaa agccagcgcc ttgccccagg ccccgagggg tggagcccggt 240
ctgctcaggg ttgcaggccc agattctcca ctgctaccga gatcgccgc atgagggtgct 300
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cctggggctg ccacgtgttt aggaaacaaa gtatgcgcta ctgtctgaaa acaataaaag 540
cagatgcctt tgttttcaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 600
aaag 604

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&lt;210&gt; 276

&lt;211&gt; 1381

<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1348)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1349)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1350)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1358)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1359)  
<223> n equals a,t,g, or c

<400> 276  
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ctgagctggc agaagacaag gagaattaca agaaattcta tgaggcattc tctaaaaatc 180  
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aggagacaca gaagtccatc tattacatca ctggtgagag caaagagcag gtggccaact 360  
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ccaaggaggg tctggagctg cctgaggatg aggaggagaa gaagaagatg gaagagagca 540  
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cagaggaacc caatgctgca gttcctgatg agatccccc tctcgagggc gatgaggatg 1020  
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gtatagtgtc cccatgggct cccactgcag cctcgagtg cctgtccca cctggctccc 1140  
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gtttatttta ttttcttcat tttgttctga aattaaagta tgcaaaataa agaatatgcc 1320



gttttttatac aaaaaaaaaa aaaaaaannn ggggggggng ccccggtccc matttcccc 1380  
c 1381

<210> 277

<211> 1149

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (680)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1088)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1098)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1140)

<223> n equals a,t,g, or c

<400> 277

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atgtcaaaaag gcaactgatga agatattttc tctggagtct ccttctttct aaccgggctc 180
tcccgatgtg aaccgagccg tcgtccgccc gccgccgccg ccgccgccgc cgccgcccgc 240
cccgagcccc accatgtctc gccgcaagca aggcaaacc cagcaactta gcaaacggga 300
attctcgccc gagcctcttg aagccattct tacagatgat gaaccagacc acggcccgtt 360
gggagctcca gaaggggatc atgacctcct cacctgtggg cagtgccaga tgaacttccc 420
attgggggac attcttattt ttatcgagca caaacggaaa caatgcaatg gcagcctctg 480
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caatcccgtg gaggttggca tccaggtcac gccagaggat gacgattgtt tatcaacgtc 600
atctagagga atttgcccca aacaggaaca catagcagat aaacttctgc actggagggg 660
cctctcctcc cctcgttctn gcacatggag ctctaattccc caccgctggg atgagtgcag 720
aatatgcccc gcaggtattt gtaaagatga gccagcagc tacacatgta caacttgcaa 780
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<210> 278

&lt;211&gt; 811

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 278

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cgcgcgcgcg acgccatcct ggatgcgctg gagaacctga ccgccgagga gctcaagaag 180
ttcaagctga agctgctgtc ggtgccgctg cgcgaggggct acgggcgcat cccgcggggc 240
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cctcctcagt cggcagccaa gccaggcctg cactttatag accagcaccg ggctgcgctt 480
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ccggtcasc cttggcaatcc caccaaatca tcctgaatct gatcttttta tacacaatat 780
acgaaaagcc agcttgaaaa aaaaaaaaaa a                                     811

```

&lt;210&gt; 279

&lt;211&gt; 1260

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1249)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1252)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 279

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ccacttttyt tgacagtcca gccacctcc tcttctgccc ggagaagctc caggggytgc 180
ctttktgatc acagcatctt cacaaggacc aaaggaaaat aagatttcty gtaagaacac 240
cgtgaccaca tctttaaaat gacccatttc gtggctycca caagatttac acctycacac 300
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aatgacaact tccaggatga cccccacgcg ggactccctc agctcggcaa gagactgcct 660
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actgtgcgct gtctggggac ccaccaggag accagggtgtc tgaagtggac tgtgtgagcc 960
tgggcattcc cagagaggaa gggccgctgt gcaactgccc gccttcagaa agacagaatt 1020
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aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaant tngggggggg 1260

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&lt;210&gt; 280

&lt;211&gt; 1668

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 280

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ttgattgtsa cagcaagatc aaataacaaa acgaagcata ttgaagaaga gaacttgatt 180
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&lt;210&gt; 281

&lt;211&gt; 2328

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 281

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&lt;210&gt; 282

&lt;211&gt; 956

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 282

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<210> 283

<211> 1402

<212> DNA

<213> Homo sapiens

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<221> misc feature

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<221> misc feature

<222> (97)

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<220>

<221> misc feature

<222> (131)

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<222> (1344)

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<220>

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<222> (1355)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1394)

<223> n equals a,t,g, or c

<400> 283

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<210> 284

<211> 675

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (520)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (560)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (618)

<223> n equals a,t,g, or c

<400> 284

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<210> 285

<211> 1339

<212> DNA

<213> Homo sapiens

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<220>

<221> misc feature

<222> (1331)

<223> n equals a,t,g, or c

<400> 285

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aaaaaaaaan naaaaaaaaa 1339

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<210> 286  
<211> 1398  
<212> DNA  
<213> Homo sapiens

<400> 286  
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<210> 287  
<211> 926  
<212> DNA  
<213> Homo sapiens

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<222> (20)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c



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&lt;221&gt; misc feature

&lt;222&gt; (917)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 287

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&lt;210&gt; 288

&lt;211&gt; 3094

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 288

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&lt;210&gt; 289

&lt;211&gt; 1983

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 289

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<210> 290

<211> 1298

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1224)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1231)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1242)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1262)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1285)

<223> n equals a,t,g, or c

&lt;400&gt; 290

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&lt;210&gt; 291

&lt;211&gt; 2459

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (3)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (4)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1604)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1605)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

<221> misc feature

<222> (2374)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2392)

<223> n equals a,t,g, or c

<400> 291

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<210> 292  
 <211> 570  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (567)  
 <223> n equals a,t,g, or c

<400> 292  
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<210> 293  
 <211> 2468  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (2076)  
 <223> n equals a,t,g, or c

<400> 293  
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<210> 294

<211> 1080

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1038)

<223> n equals a,t,g, or c

<400> 294

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<210> 295

<211> 2695

<212> DNA

<213> Homo sapiens

<400> 295

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<210> 296

<211> 1394

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1238)

<223> n equals a,t,g, or c

<400> 296

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<210> 297

<211> 998

<212> DNA

<213> Homo sapiens

<400> 297

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&lt;210&gt; 298

&lt;211&gt; 1666

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 298

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&lt;210&gt; 299

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 <212> DNA  
 <213> Homo sapiens

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 <222> (4)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (402)  
 <223> n equals a,t,g, or c

<400> 299  
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251

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&lt;210&gt; 300

&lt;211&gt; 1026

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1026)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 300

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&lt;210&gt; 301

&lt;211&gt; 830

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 301

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<210> 302

<211> 3300

<212> DNA

<213> Homo sapiens

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<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3280)

<223> n equals a,t,g, or c

<400> 302

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<211> 475

<212> DNA

<213> Homo sapiens

<220>

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<223> n equals a,t,g, or c

<220>

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<223> n equals a,t,g, or c

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&lt;221&gt; misc feature

&lt;222&gt; (470)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 303

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aattgtgaaa gtaaagaagg aataatctac cctgactaaa gcttgaaatg ctacatttcc 300
aaggtgaaga tgtgtgggca catgttatgg cagattgaaa aggatctcat tccatgggaa 360
aaaaaaaaat cctgtcttgt tcataaattg acaatgtcaa taaattgaaa tatggttcac 420
tgttaaaaaa aaaaaaaaaa aaangggggg nccnttttaa agaatccaan tttac 475

```

&lt;210&gt; 304

&lt;211&gt; 2902

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2888)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2891)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 304

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aaaaaacncg ngggggggcc cg 2902

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&lt;210&gt; 305

&lt;211&gt; 1553

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 305

```

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ggctcggaga gcagtcctaa cggcgccctg tacgctagtg tccctccctt tcagtcgcg 120
tccctccctg ggccgggctg gcactcttgc ctctcccgct cctcatggcg ctgctccgac 180
gccgacgggt gtccagtgat ttggagaata ttgacacagg agttaattct aaagttaaga 240
gtcatgtgac tattaggcga actgttttag aagaaattgg aaatagagtt acaaccagag 300
cagcacaagt agctaagaaa gctcagaaca ccaaagttcc agttcaaccc accaaaacaa 360
caaatgtcaa caaacaactg aaacctactg cttctgtcaa accagtacag atggaaaagt 420
tggtccaaa gggctccttct cccacacctg aggatgtctc catgaaggaa gagaatctct 480
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agaacctcga gctctgcagt gactacgtta aggatatcta tcagtatctc aggcagctgg 600
aggttttgca gtccataaac ccacatttct tagatggaag agatataaat ggacgcatgc 660
gtgccatcct agtggtattg ctggtacaag tccactccaa gtttargctt ctgcaggaga 720
ctctgtacat gtgcgttggc attatggatc gattttttaca ggttcagcca gtttcccgga 780
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<210> 306

<211> 1987

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (731)

<223> n equals a,t,g, or c

<400> 306

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aactgggctg cacttctctc tccacttatg aggctaaatt ttggtgaaga gatccagcaa 300
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ggcttgtggg tgacaccacc actgatccac agtctgagtc tgaataccaa gagatatctc 420
ctgatattctg cacctctgtg gataaaacac atctctgatg aacagatcct gggttttgtt 480
gaaaatttaa tgggtggcagt ttttaaagca gcttccccac ttggaagtcc tgagctatgc 540
ccaagtgctt tacacggtct gagccaggcc atgaaactgc ccagccctgc ccaccacctc 600
tggagtctgc tctctgaagc tactgggaaa atttttgacc tcctgcaaaa taagattcgg 660
agaaaggatc tagagctgta tatcagcata gcaaaatgcc tcttagaaat gacagatgat 720
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ccacatcact gacagcttga cacatgcctc ctaagagagg agtgcattgc tttagtacc 1620

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atttaaataa taagcataac attgaatatt agctaaatca gattcattaa tgggtgtctat 1980
cattttcc                                     1987

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&lt;210&gt; 307

&lt;211&gt; 785

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 307

```

gcgcgacccg ccccgctccg tccagtctgg cctgggcgcc gcgggaacgc tgtcctggct 60
gccgccaccc gaacagcctg tcctgggtgcc ccggctccct gcccgcgcc cagtcatgac 120
cctgcgcccc tcactcctcc cgctccatct gctgctgctg ctgctgctca gtgcggcggt 180
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ggccatggtg ccagccctcc tgggcctcat tgggtatcac ctatacagaa aggccaatag 660
acccaaagtc tccaaaaaga agctcaagga agagaaacga aacaagagca aaaagaaata 720
ataaataata aatttttaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 780
aaaaa                                           785

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&lt;210&gt; 308

&lt;211&gt; 2178

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 308

```

ggcagaggrc gggaagaccg agtggctctt tggcatggat gagggccgga aacagctggc 60
ggccagtgtt ggcttcagga ggttgattac agtggccctt caccgaggtc agcagtatga 120
aagcatggac cacatccaag ctgagctgtc rgctagagtc atggagctgg cccagctgg 180
gatgccacc cagcagcagg tcccctttct gtctgtgggt ggggacattg gggctccggac 240
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taagaagcag cggcctgctg atgcggagga cctccctgca gccccggggc agtccattga 480
taagaggttac ctgtgttgtg aacaccacaa agccatgacg gctggccttg cctgtctgag 540
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&lt;210&gt; 309

&lt;211&gt; 875

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 309

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caagctcctg tggccacctg tgtcccagca gcagtgagtg gagctgctca ggggtgccctc 60
tcctgcggac cagtctctga atgttcaaag atgagggcct ggcttccgtg ctctggcttt 120
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 875

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&lt;210&gt; 310

&lt;211&gt; 756

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

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 <223> n equals a,t,g, or c

<220>  
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 <223> n equals a,t,g, or c

<220>  
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 <222> (684)  
 <223> n equals a,t,g, or c

<220>  
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<210> 311  
 <211> 851  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (834)  
 <223> n equals a,t,g, or c

<400> 311  
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 tgggaaaggc ttttcaagta tgctagaata ttgcaagcat ttaaattcac atttatctga 420

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gttttgaaat gaaagggaat taataagtca ccttccagtc catgagacaa cttgattatt 600
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ttataaaaatt ttattggcat tgctccattt tctgtatata aatataatctt taatgtggta 780
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ctcactaatc c 851

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<210> 312

<211> 1335

<212> DNA

<213> Homo sapiens

<400> 312

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cctcctcttc atcatcgtcg tcgtcgtcct cctcctcctc tggctccagt tctagttagt 180
cagaggggtc tagccttcct gtgcaacctg aggtggcact gaagaggggtc cccagcccca 240
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aaaaaaaaaa aaaaa 1335

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<210> 313

<211> 516

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (505)

<223> n equals a,t,g, or c

<400> 313

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ctgagggagg cgcgagggcg cggagttcca ggtcgagcag ttaggccgcg agcgactgcg 120
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gtcggctcgc cggcccaagc ccctcgtcga ccccgccctgc atcacctcca tccagcccg 420
ggccccaag accatcgtgc ggggcagcaa argtgccaaa gatggggccc tcacgctgct 480
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<210> 314

<211> 1833

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (625)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1761)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1766)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1792)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1806)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1827)

<223> n equals a,t,g, or c

<400> 314

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ttcaaagata atcatcatca agaaagggca tgctaaagac agccagcgct acaaagttga 300
ctacgagtct cagagcacag ataccagaa cttctcctcc gagtccaagc gggagacaga 360

```

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gcagtgtcgc  ccttccaaag  gcaggaagcg  gggcttctgc  tgggtgtgtg  ataagtatgg  540
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gagcaagtag  acgcctgcc  caagntaat  gtggagctca  aatatgcctt  attttgaca  660
aaagactgcc  aaggacatga  ccagcagctg  gctacagcct  cgatttata  ttctgtttgt  720
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&lt;210&gt; 315

&lt;211&gt; 1354

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 315

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agaattgttt	ttgaatttaa	ataaagttac	ttgaatttca	aaaaaaaaaa	aaaaaaaaaa	1320
aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaa			1354

&lt;210&gt; 316

&lt;211&gt; 2421

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 316

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tgctttccat ccagtatgct a

2421

&lt;210&gt; 317

&lt;211&gt; 1092

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 317

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aaaaaaaaaa ac 1092

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&lt;210&gt; 318

&lt;211&gt; 1380

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 318

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tgtcaatatc ttaatgtatt taatgtagaa tattgctttt taaaataatg tttttatttt 1320
gctgtagaaa aataaaaaaa aatttgatta taaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1380

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<210> 319

<211> 2612

<212> DNA

<213> Homo sapiens

<400> 319

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gcagcccgga ttgagggaga aggggtccgtg ctgcaggcca agctaaaagc acaggccttg 2340
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tatgcccggg cccagctgga gctggagggtg agcaaggctc agcagctggc tgagggtggag 2460
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<210> 320

<211> 943

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (52)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (54)

<223> n equals a,t,g, or c

<400> 320

```

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taaagtgtgt ctctgaagag caaatgtctc attccagtaa tgaccctctc agcaggaata 120
tggtggagtt cagtccaatt cagggtcagcc atatccaaaa gaccacaagt cattactaag 180
ttgagcaaaa gagttttttat ctattagcag aaagggcctc tctggcagca gagattaaaa 240
actggcccaa cttcattttcc atacttcagg gaacagcaaa ttgaggattt acttatctag 300
gacttgaatt ctttcttttg gaccaagtta ataaaagacc aagaaactcc tgattaaact 360
ggataatgaa ggattctgta gacagggctg cacgtatcgg ctttgtttga cttctctttt 420
ctcagttaac atctcagagc tagaacattc cacattcccc agcagcgtgt gggggctgac 480
taaagtttac aattccaact aaaaatcacc ctgcttcttg cttatctgaa tcccttacct 540
acccaccccc accaccctac tcctattttat tcagcaccac actaccagag aaatacacta 600
gcaaatgtgt caatggaata aaatccacac tttagattct tgcaactgta tcatatgtaa 660
tagtatcact ttttctacat tttggtcaaa taaataggag taggggtggtg ggggtggggtg 720
ggtaagggat tcagataagc cagaagcagg gtgattttwa gttggaattg taaacttttag 780
tcagcccccac cagctgctg ggaatgtgg atgttctagc tctgagatgt taactgrgaa 840
aagagaagtc aaacaaagcc gatacgtgca gccctgtcta cagaatcctt cattatccag 900
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```

<210> 321

<211> 2959

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2948)

<223> n equals a,t,g, or c

<220>

&lt;221&gt; misc feature

&lt;222&gt; (2956)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 321

```

ccattcccgg gtcgaccac gcgtccgctg gaaatttggg ttctccagaa ggtgggttctg 60
atgccatcat gcaagttgca gtttgtggat cactgattgg ctggagggaat gttacacggc 120
tgctgggtgtt ttccacagat gccgggtttc actttgctgg agatgggaaa cttgggtggca 180
ttgtttttacc aaatgatgga caatgtcacc tggaaaaataa tatgtacaca atgagccatt 240
attatgatta tccttctatt gctcaccttg tccagaaact gagtgaaaat aatattcaga 300
caatttttgc agttactgaa gaatttcagc ctgtttacaa ggagctgaaa aacttgatcc 360
ctaagtcagc agtaggaaca ttatctgcma attctagcaa tgtaattcag ttgatcattg 420
atgcatacaa ttccctttcc tcagaagtca ttttggaaaaa cggcaaattg tcagaaggmg 480
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tcttgactct gatgtatttt awcagggtgt gtgcatgaaa tttttataga taaagragtt 2940
gaggaaanaa aaaaanaaa                               2959

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<210> 322

<211> 802

<212> DNA

<213> Homo sapiens

<400> 322

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ggcacagctg gaggcgcggg agggcagcga gaggttcgcg ggtgcagcgc acaggagacc 60
atgtccgggg gcagcagctg cagccagacc ccaagccggg ccatccccgc cactcgccgg 120
gtggtgctcg gcgacggcgt gcagctcccc cccggggact acagcacgac ccccgccggc 180
acgctcttca gcaccacccc gggaggtacc aggatcatct atgaccggaa attcctgatg 240
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accagccatc gtgtggagca ctaccaaggg gccctcagg gccttcctgg gaggagtccc 480
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ccagcccttt ctccctcact cagggcacct gccccctcct cttcgtgaac accagcagat 600
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cacaccctcg cwgcyggggg sgcaaccacc ccttccttag gttgatgtgc ttgggaaagc 720
tccctcccc tccttcccc aagagaggaaa taaaagccmc cttcgcccta gggccaaraa 780
aaaaaaaaaa aaaaaaaaaa aa                               802

```

<210> 323

<211> 1724

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1590)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1650)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1701)

<223> n equals a,t,g, or c

<400> 323

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gcagcctgcc agccgcgctg ctgctgctcc tcctgctgtg ggaccgctga ccgcgcggct 60
getccgctct ccccgctcca agcgccgacg tgggcacccg ccaccagcat ggacgctcgc 120
cgcgtgccgc agaaagatct cagagtaaag aagaacttaa agaaattcag atatgtgaag 180
ttgatttcca tggaacctc gtcacctct gatgacagtt gtgacagctt tgcttctgat 240

```

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aattttgcaa acacgaggct gcagtcagtt cgggaaggct gtaggaccgc cagccagtgc 300
aggcactctg gacctctcag ggtggcgatg aagtttccag cgcggagtag caggggagca 360
accaacaaaa aagcagagtc ccgccagccc tcagagaatt ctgtgactga ttccaactcc 420
gattcagaag atgaaagtgg aatgaatttt ttggagaaaa gggctttaaa tataaagcaa 480
aaciaaagcaa tgcttgcaaa actcatgtct gaattagaaa gcttccctgg ctcggtccgt 540
ggaagacatc ccctcccagg ctccgactca caatcaagga gaccgcgaag gcgtacattc 600
ccgggtgttg cttccaggag aaaccctgaa cggagagctc gtccctctac caggtaagg 660
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tacatgttgg tgagaaagag gaagaccgtg gatggctaca tgaatgaaga tgacctgcc 780
agaagccgtc gctccagatc atccgtgacc cttccgcata taattcgccc agtgaagaa 840
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tgaatttctt ttaaattaca gttttatgaa agcatatttt atttacttgg tgttgaaata 1560
gccctyataa aacctaaagc cttggaaacn caataatagt attaaactaac tagatctatt 1620
gaatttcaga gaagagccta aatagcaaan ttacacaaa aacgagtatg atttagcact 1680
catactagtt gaggggttgg ngccgatagc gactgctaata gaac 1724

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<210> 324

<211> 2261

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1098)

<223> n equals a,t,g, or c

<400> 324

```

cccagatggg aggccaaacag gggacgcttt tgtcctcttt gcctgtgagg aatatgcaca 60
gaatgcgttg aggaagcata aagacttggt gggtaaaaga tacattgaac tcttcaggag 120
cacagcagct gaagttcagc aggtgctgaa tcgattctcc tcggccctc tcattccact 180
tccaacccct cccattattc cagtactacc tcagcaattt gtgccccta caaatgttag 240
agactgtata cgccttcgag gtcttcctta tgcagccaca attgaggaca tcctggattt 300
cctgggggag ttccgccacag atattcgtac tcatggggtt cacatgggtt tgaatcacca 360
gggccgcccc tcaggagatg cttttatcca gatgaagtct gcggacagag catttatggc 420
tgcacagaag tgcataaaaa aaaacatgaa ggacagatat gttgaagtct ttcagtgttc 480
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accgccatgc ctgtctcttc cctctacac atttccagct cctgctgcar ttattcctac 600
araarctgcc atttaccagc cctctgtgat tttgaatcca cgagcactgc agccctycac 660
agcgtactac ccagcaggca ctcagctctt catgaactac acagcgtact atcccagtgt 720
ttgaaagatg tatgggtgat ttgaaacctc cagacacaaag aaaacttcta gcaaattcag 780
gggaagtttg tctacactca ggctgcagta ttttcagcaa acttgatttg acaaacgggc 840

```

```

ctgtgcctta tcttttggtg gagtgaaaa atttgagcta gtgaagccaa atcgtaactt 900
acagcaagca gcatgcagca tacctggctc tttgctgatt gcaaataaggc atttaaaatg 960
tgaatttgga atcagatgtc tccattactt ccagttaaag tggcatcata ggtgtttcct 1020
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cttaggagaa agaataaaat tgttattttc ccagtctctt ggccatgatg atatcttatg 1260
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aagtgaagaca atttgaacag tgtattctag aaaacaatac actaactgaa cagaagtga 1620
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aacaggattt cattaagtgc attgaatgtg gmtatttctc taagttactc atattgtcct 1920
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```

<210> 325

<211> 1213

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1213)

<223> n equals a,t,g, or c

<400> 325

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tggacgcgtg ggtcgaccca cgcgctccggt caaaaytaac cccctaataa aattaattaa 60
ccactcattc atcgacctcc ccaccccatc caacatctcc gcatgatgaa acttcggctc 120
actccttggc gcttgacctga tcctccaaat caccacagga ctattcctag ccatgcacta 180
ctcaccagac gcctcaaccg ccttttcac aatcgccccc atcactcgag acgtaaatta 240
tggtgaatc atccgctacc ttcacgcca tggcgcctca atattcttta tctgcctctt 300
cctacacatc gggcgaggcc tatattacgg atcatttctc tactcagaaa cctgaaacat 360
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aggccaaata tcattctgag gggccacagt aattacaaac ttactatccg ccatcccata 480
cattgggaca gacctagtgc aatgaatctg aggaggctac tcagtagaca gtcccacct 540
cacacgattc tttacctttc acttcactct gcccttcatt attgcagccc tagcagcact 600
ccacctccta ttcttgacag aaacgggatc aaacaacccc ctaggaatca cctcccattc 660
cgataaaatc acctccacc cttactacac aatcaaagac gccctcggct tacttctctt 720
ccttctctcc ttaatgacat taacactatt ctccaccagac ctccataggcg acccagacaa 780
ttatacccta gccaacccct taaacacccc tccccacatc aagcccgaat gatatttcct 840
attgccttac acaattctcc gatccgtccc taacaaacta ggaggcgctc ttgccctatt 900

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```

actatccatc ctcatcctag caataatccc catcctccat atatccaaac aacaaagcat 960
aatatttcgc ccactaagcc aatcacttta ttgactccta gccgcagacc tcctcattct 1020
aacctgaatc ggaggacaac cagtaagcta cccttttacc atcattggac aagtagcatc 1080
cgtactatac ttcacaacaa tcctaatacct aataccaact atctccctaa tkgaaaacaa 1140
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ttcccccccta ggn 1213

```

<210> 326

<211> 2764

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (372)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2128)

<223> n equals a,t,g, or c

<400> 326

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tggaagctca ggctgggcag atccgggctc aggccgkca rgartcagaa cgcctggccc 120
gggacaagaa tgcctcctta cagctgctgc aaaaggagaa ggagaagctg actgtgctgg 180
aaaggagata ccactcactc acaggggggca ggcctttccc gaagaccaca tcgaccctca 240
aagaggttta ccgctccaag atggatggcg aggccaccag ccccttccc cggaccgcga 300
gcggccctc ccctcctcct ctggctcttc ctccctcctc tcccagctca gcgtggctac 360
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aagaagaaaa gtagagggtg ctttgctgcc tcctgggagc ccagaacttg cagtaaccct 1680

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<210> 327

<211> 1764

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1398)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1758)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1759)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1762)

<223> n equals a,t,g, or c

<400> 327

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gctgtgaccg ctgtgaagaa tggtttcagt gcgatttgtt gggcatttct gaggctcgag 180
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atgctgatgg caccgattgt acaagtatag gaacaataga gcagaagtct agcgaagacc 360
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tcttccagcc tgtgatagag gcgcctgggt cctcaaaatg tattggcccc ggggtgctgtc 480
acgtggcgca cccgactcgg tgtactgcag taatgactgt atcctcaaac acgcccgcagc 540
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ctttaaaaaa aaaaaaannt cnaa 1764

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<210> 328

<211> 571

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (535)

<223> n equals a,t,g, or c

<400> 328

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ggccgcatca aggtggtctt tactccgagc atctgttaaag tgacctgcac caagggcagc 180
tgtcagaaca gctgtgagaa ggggaacacc accactctca ttagtgagaa tggatcatgt 240
gccgacaccc tgacggccac gaacttccga gtggtaattt gccatcttcc atgtatgaat 300
gggtggccagt gcagttcaag ggacaaatgt cagtgccttc caaatttcac agggaaaactt 360
tgtcagatcc cagtccatgg tgccagcgtg cstaaacttt atcagcatte ccagcagcca 420
ggcaaggcat tggggacgca tgtcatccat tcaacacata ccttgccctc gaccgtgact 480
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cctcctgaag cttccgtcca gatacatcag g

571

<210> 329

<211> 473

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (449)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (467)

<223> n equals a,t,g, or c

<400> 329

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ttgggaacca	aatggttttg	ggcatgattt	cccagctcat	tatatattga	cacagaattt	180
tttcagaatg	gcatttacta	gtaccccaga	aatttagcaa	agtatagtta	ggtacttatt	240
gtaaaatata	ttgcatattt	gatttaaggt	ttgttatgaa	cacactaatc	tgatatttta	300
tattttaaacc	attttcaatk	ctgtaagact	cagtaagagc	tatttaatta	tactgwaaca	360
aagaaaatct	ataaataaat	agcacaaata	ggcacatgcg	ggtgtataat	actgaagtgg	420
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<210> 330

<211> 1335

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (865)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1004)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1156)

<223> n equals a,t,g, or c

<220>  
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 <222> (1301)  
 <223> n equals a,t,g, or c

<220>  
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 <222> (1328)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1333)  
 <223> n equals a,t,g, or c

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 aggatgagca agctgcccag ggagctgacc cgagacttgg agcgagctg cctgccgtgg 180  
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 ctgagaagcg aagggccatc tctgatgtcc gccgcacctt ctgtctcttc gtcaccttcg 300  
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 tttgcacntt gtnctg 1335

<210> 331  
 <211> 1046  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (982)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (997)  
 <223> n equals a,t,g, or c

<400> 331  
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 ccctgcctgt caccatttc tgtgccacca gcccacccc tgctccact ctctccctg 300  
 ccaccttctg tccctgccat aggaatatgg ggacaccgtg tacaccattg aagttccctt 360  
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 ggaggtgatc ctgcagccc agaggatggt gctgtggaac aagacagtga ctgcctgcca 480  
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<210> 332  
 <211> 1311  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (1280)  
 <223> n equals a,t,g, or c

<400> 332  
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 caggctcaag attagattat cgtcgtatg cagacacact ctgcgatat ctgggtggctg 360  
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 accactgtgt gttttcagca aatgaagatc atgaaaccat ccgaaactat gctcaggtct 480  
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<210> 333

<211> 1444

<212> DNA

<213> Homo sapiens

<400> 333

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ccacaggccc cttccccagc ctgagttcac agctgccctg ttgcaggag gcggtggccc 180
ttctgttgct agaccgagcc tgtgggatat accaaggcag aggagcccat agccatgagg 240
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<210> 334

<211> 1030

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (59)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
 <222> (989)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1006)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1023)  
 <223> n equals a,t,g, or c

<400> 334  
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<210> 335  
 <211> 2127  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (72)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (2098)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature

&lt;222&gt; (2114)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2117)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 335

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tgatgtttgg tgtcccatct gtgattgtgg ccggaacca cagagatgct ggagcaccca 1500
cctacatgta tgagtttcag taccgtccaa gcttctcctc agacatgaaa cccaagacgg 1560
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ggtggtgggg ggcaggggag agaggccatg aaggagcaag ttttgtattt gtgacctcag 2040
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gttcccaatt tacnaanggg tgcttgg 2127
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&lt;210&gt; 336

&lt;211&gt; 847

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens



<220>  
 <221> misc feature  
 <222> (291)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (334)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (829)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (847)  
 <223> n equals a,t,g, or c

<400> 336  
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 tggagaaacg actctgcgcc gccgctgcct ccacctctggg caaacctgcg gacggaccac 120  
 tccccactcc ttctctcacg ccaagctctg actttccgtg ctccacgatc ccgcggctcc 180  
 ccctccgcac gtctttccct tgcgcgccct cccagtcattg acccgggcgt gaccttcagg 240  
 gaccgcggcc cgtatcggga tccctgcccc gcgaacactg cgcgtttcgg ntttcgcgcg 300  
 ctggggtccc gtccccagag gtagcccgcc cggntccaac ttcggggcaa attttcatgt 360  
 cccctgcgg accgcgtgaa cgtgacggta cggccggggc tggccatggc gctgagcggg 420  
 tccaccgagc cctgcgcgca gctgtccatc tcctccatcg gcgtagtggg caccgcccag 480  
 gacaaccgca gccacagcgc ccacttcttt gaggttctca ccaaggagct agccctgggc 540  
 caggaccgga tacttatccg ctttttcccc ttggagtcct ggcagattgg caagataggg 600  
 acgggtcatga cttttttatg attgggcacg gagggatcca gggcatctgt gaactggctg 660  
 cttcttccag agagatctct tggcagagt agggcctgga gataaccagc tttggattat 720  
 cccgcattga acattcctgt gatcacataa tcctctctct catcctcata tgaaataaat 780  
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 ttggccn 847

<210> 337  
 <211> 702  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (21)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (150)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (669)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (679)  
 <223> n equals a,t,g, or c

<400> 337  
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 ccgcctcttc cgctgcgtgc cggaccatgg cgcaggggca gcgcaagttt caggcgcaca 120  
 aaccgcgaaa gagtaagacg gcagcggcan cctctgaaaa gaatcggggc ccaagaaaag 180  
 gcggtcgtgt tatcgctccc argaaggcgc gcgtcgtgca gcagcaaaaag ctcaagaaga 240  
 acctagaagt cggaatccgg aagaagatcg aacatgacgt ggtgatgaaa gccagcagca 300  
 gcctgcccga gaagctggca ctgctgaagg ccccagccaa gaagaaaggg gcagctgccg 360  
 ccacctcttc caagacacct tcctgaggac gctggcccca gtgcaggcca acatcccacc 420  
 ccctaccttc atatgggacc ttgcaagtca tcccacaggc tgcaactgtca ggaagaggac 480  
 cctgtccccc agcactgggc ttcacctaga acttcagtgg gggccaaggg tgctgagaac 540  
 ccagcaatga ccaggaagat acagtcacta acttcacttg tccccgtgcc ccttcccagg 600  
 tcctgccttc acaggtttta cccagaacaa taaacctggc tttgtcaama aaaaaaaaaa 660  
 agggccggnc gtttttagang atccagctta cgtaccgtgc tt 702

<210> 338  
 <211> 875  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (791)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (813)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (830)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (861)  
 <223> n equals a,t,g, or c

<400> 338

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aaatggcaaa aaagaaaata tccttgagtt tgtaatctag ttacagaagt aaggcataca 120
cacacacaaa gataacagta cctagagaga gagtgtgtgt gagtgtgctg gtctctgtgt 180
gtgcacgtgc acgctcatgg ccaaagtgtc gcactctaca taaaggaggc aggagttcct 240
ataggctatt taatgtaaga gaaactattt ttctcctggt ccagctgtat cagatactcg 300
ttccgcaaca cagaaatgac tcagaatctc agacaaaatg tattatttgt tcaattttaa 360
ttttgctact acattcataa ctcttaaatt gttaggctgt ttcatTTtaca tcaaagttat 420
ctcacaaaag agaaggcagg aaacgttttg tgagtgccta ttctatgtca aacactgtgt 480
tggcaccata ttttacaagt ttttttcctc ttctcacagt gatcttgtga gttagttact 540
tatattttta ttagaactca ttattctggg taccctccaa tgagaattag agaggttaaa 600
taccttttcc tagattccca cagcaggaag gtgggcatag ctgttttgtc tgacaccaga 660
accatctca ccacactgct ttacagtctt cctgaaggga catTTtgagg tggggggggg 720
ccttcaaagc tcagaggact ggggttkgaa tgggtttaat ttttgcaagg gatccatgtc 780
catgccaggg ngtttacaat tctttaactt cntcccaaa ttcgtgtgtn ccattaggga 840
catttggtt acatccgggc nggggagggg caggg 875

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<210> 339

<211> 1448

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1427)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1432)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1440)

<223> n equals a,t,g, or c

<400> 339

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ccaagttccg gccagttcga cctcgaggat ccagaggtgg agacggtact acctcccagc 120
tctgttttcc atccccttca ggtccttcct cgggaggcgg cgaaggcggg ccaccctgcg 180
cgtgatcctt yatgcccggc ccctgcccct ccctccgggt ggaacttccc cctcaccgcc 240
agacttaagc tgaggatcgt tggatctctg gcgggggtgca gaactgagcc caggccacag 300
taccctattc acgctctgtg cttgtgccaa gggggcaatg gcggcttcct gtgttctact 360
gcacactggg cagaagatgc ctctgattgg tctgggtacc tggaagagtg agcctggtca 420
ggtaaaagca gctgttaagt atgcccttag cgtaggctac cgccacattg attgtgctgc 480
tatctacggc aatgagcctg agattgggga ggccctgaag gaggacgtgg gaccaggcaa 540
ggcgggtgct cgggaggagc tgtttgtgac atccaagctg tggaacacca agcaccaccc 600
cgaggatgtg gagcctgccc tccggaagac tctggctgac ctccagctgg agtatctgga 660
cctgtacctg atgcaactggc cttatgcctt tgagcgggga gacaaccctt tccccagaa 720
tgctgatggg actatatgct acgactccac ccaactacaag gagacttgga aggctctgga 780
ggcactggtg gctaaggggc tgggtgcaggc gctgggcctg tccaacttca acagtcggca 840

```

```

gattgatgac atactcagtg tggcctccgt gcgtccagct gtcttgcagg tggaatgcca 900
cccatacttg gctcaaaatg agctaattgc ccactgccaa gcacgtggcc tggaggtaac 960
tgcttatagc cctttgggct cctctgatcg tgcatggcgt gatcctgatg agcctgtcct 1020
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gagagtccca agggatgcag ggcacacctt gtaccccttt aatgaccctg actgagacca 1320
cagcttcttg gcctcccttc cagctctgca gctaattgagg tcctgccaca acggaaaagag 1380
ggagttaata aagccatttg agcatccaaa aaaaaaaaaa aaaaaanayc tngsggccgn 1440
caaggga                                           1448

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<210> 340

<211> 843

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (812)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (822)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (829)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (838)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (841)

<223> n equals a,t,g, or c

<400> 340

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tgccctcttaa gcaagagatt cattgcagct cagcatggct cagaccagct catacttcat 120
gctgatctcc tgccctgatgt ttctgtctca gagccaaggc caagaggccc agacagagtt 180
gccccaggcc cggatcagct gcccagaagg caccaatgcc tatcgctcct actgctacta 240
ctttaatgaa gaccgtgaga cctgggttga tgcagatctc tattgccaga acatgaattc 300
gggcaacctg gtgtctgtgc tcaccaggc cgagggtgcc tttgtggcct cactgattaa 360
ggagagtggc actgatgact tcaatgtctg gattggcctc catgacccca aaaagaaccg 420
ccgctggcac tggagcagtg ggtccctggt ctctacaag tcctggggca ttggagcccc 480

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```

aagcagtgtt aatcctggct actgtgtgag cctgacctca agcacaggat tccagaaatg 540
gaaggatgtg ccttgtgaag acaagttctc ctttgtctgc aagttcaaaa actagaggca 600
gctggaaaaat acatgtctag aactgatcca gcaattacaa cggagtcaaa aattaaaccg 660
gaccatctct ccaactcaac tcaacctgga cactctcttc tctgctgagt ttgccttgtt 720
aatcttcaat agttttacct accccagtct ttggaaccyt aaataataaa aataaacatg 780
tttccactaa aaaaaaaaaa aaaaaaaamt cncagggggg gnccggtanc caattcgnc 840
naa 843

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<210> 341

<211> 1293

<212> DNA

<213> Homo sapiens

<400> 341

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tagttatata agattggaac taccaagcat gtggctcctg gtcagtgtaa ttctaattctc 120
acggatatcc tctgttgggg gagaagcaac attttgtgat tttccaaaaa taaaccatgg 180
aattctatat gatgaagaaa aatataagcc attttcccag gttcctacag gggaagtatt 240
ctattactcc tgtgaatata attttgtgtc tccttcaaaa tcattttgga ctgcgataac 300
atgcacagaa gaaggatggt caccaacacc aaagtgtctc agactgtgtt tctttccttt 360
tgtggaaaat ggtcattctg aatcttcagg acaaacacat ctggaagggtg atactgtgca 420
aattatttgc aacacaggat acagacttca aaacaatgag aacaacattt catgtgtaga 480
acggggctgg tccaccctc ccaaatgcag gtccactgac acttcctgtg tgaatccgcc 540
cacagtacaa aatgctyata tastgtcgag acagatgagt aaatatccat ctgggtgagag 600
agtacgttat saatgtagga gcccttatga aatgtttggg gatgaagaag tgatgtgttt 660
aaatggaaac tggacrgaac cacctcaatg caaagattct acrggaaaat gtggggcccc 720
tccacctatt gacaatgggg acattacttc attcccgttg tcagtatatg ctccagcttc 780
atcagttgag taccaatgcc agaacttgta tcaacttgag ggtaacaagc gaataacatg 840
tagaaatgga caatgggtcag aaccaccaa atgcttacat ccgtgtgtaa tatcccgaga 900
aattatggaa aattataaca tagcattaag gtggacagcc aaacagaagc tttattygag 960
aacaggtgaa tcagytgaat ttgtgtgtaa acggggatat cgtctttcat cacgttctca 1020
cacattgcga acaacatggt gggatgggaa actggagtat ccaacttgtg caaaaagata 1080
gaatcaatca taaartgcac acctttattc agaactttag tattaatatca gttctyaatt 1140
tcatttttwa tgtattgttt tactcctttt tattcatacg taaaattttg gattaatttg 1200
tgaaaatgta attataagct gagaccggtg gctctcttct taaaagcacc atattaaatc 1260
ctggaaaact aaaaaaaaaa aaaaaaaact cgc 1293

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<210> 342

<211> 1273

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (483)

<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1247)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1262)  
<223> n equals a,t,g, or c

<400> 342  
gcccangcgg ccgcgaggcg ccgccgccgc cgccgcagcc gccggagccg caatgcctaa 60  
aggaggaaga aagggaggcc acaaaggccg ggccgaggcag tatacaagcc ctgaggagat 120  
cgacgcgcag ctgcaggctg agaagcagaa ggccaggga gaagaggagc aaaaagaagg 180  
tgagatggg gctgcaggctg accccaaaaa ggagaagaaa tctctagact cagatgagag 240  
tgaggatgaa gaagatgact accagcaaaa gcgcaaaggc gttgaagggc tcatcgacat 300  
cgagaacccc aaccgggttg cacagacaac caaaaaggctc acacaactgg atctggacgg 360  
gccaaaggag ctttcgagga gagaacgaga agagattgag aagcagaagg caaaagagcg 420  
ttacatgaaa atgcacttg ccgggaagac agagcaagcc aaggctgacc tggcccggct 480  
ggncatcatc cggaacacgc gggaggaggc tgcccggag aaggaagagg aaaggaaagc 540  
aaaagacgat gccacattgt caggaaaacg aatgcagtca ctctccctga ataagtaact 600  
gcgacccgtg ggaggagatg ccggggacct gggccgcgct gccaggacct ctgctgtgtc 660  
tcgcccaccc tgtgccctgg cgccgctgca acagcccctc atggccagga gccccccatg 720  
gcctggggcc tcctcttcat cttggcacag aaattgtttg ggggatgggg ggggggactg 780  
ggggaggggt agctgctatc tttgagacag aaagrkgay aagagctttc atttgtctgg 840  
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cacacagccc cgactgtgt tgcctgggtg ctcattcaga gaggggctat catctgggag 960  
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tgcccatttt cagccctacc cattgatcat ttcaagaaac ctctgtttac tgtgtggcac 1140  
ccaggcaaaa catgctccac aaattcaact tgtatatattg gcagattaaa cttgacatta 1200  
tcgtaaaaaa aaaaaaaaaa atttgggggg gggcccggt cccattnggg cccttagggg 1260  
gnggtttaaa tta 1273

<210> 343  
<211> 1793  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1251)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1267)  
<223> n equals a,t,g, or c

<400> 343

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ctagtcacca tggcctgggg ccagtatggc gattatggat acccatacca gcagtatcat 120
gactacagcg atgatgggtg ggtgaatttg aaccggcaag gcttcagcta ccagtgtccc 180
caggggcagg tgatagtggc cgtgaggagc atcttcagca agaaggaagg ttctgacaga 240
caatggaact acgcctgcat gccacacca cagagcctcg gggaaccac ggagtgtctg 300
tgaggaggaga tcaacagggc tggcatggaa tggtagcaga cgtgctccaa caatgggctg 360
gtggcaggat tccagagccg ctacttcgag tcagtgtctg atcgggagtg gcagttttac 420
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actgaatacg actgtgaatt tgcaaatggt tagatttgcc acataccaaa tctgggtgaa 660
aggaaagggg ccaggggaca ggagggtgtc cacatatggt aacatcagtt ggatctccta 720
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tgggcctttc tgactagtat cacacttcta ataaaatcca caattaaacc atgtttctca 840
cttttcacat gtttcatagc aactgcttta tatgactgat gatggottcc ttgcacacca 900
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acaaaaagca ggctttctgc cctgagggac atcttcccac tcccctgctc cacatgagcc 1140
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tgaaatgggg aaatggaagg gtttgagggc agagctgaaa acagggttgg naagggattt 1260
cctgaantta raagacaaac gttagcatac ccagtaagga aaatgagtgc aggggccagg 1320
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cagacaccct ggaaccctgg ggagctactg gcaaactctc ctggattggg cctgattttt 1560
ttggtgggaa aggctgccct ggggatcaac tttccttctg tgtgtggctc aggagtctct 1620
ctgcagagat ggcgctatct ttcctcctcc tgtgatgtcc tgctcccaac catttgtact 1680
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1793
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<210> 344

<211> 1672

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (95)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1667)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1668)

<223> n equals a,t,g, or c

&lt;400&gt; 344

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aagtctaagc gccggaagtg gtgggcattc tgggtaacga gctatctact tcctgcgggg 180
gcacaggctg tggtcgtcta tctccctggt gttcttccca tcggcgaaga tggccctgga 240
gacggtgccg aaggacctgc ggcatctgcg ggctgtttg ctgtgttcgc tggccaagac 300
tatagaccag tttgaatatg atggttgatg caattgtgat gcatactac aaatgaaggg 360
taaccgagag atggtatatg actgcactag ctcttccttt gatggaatca ttgcgatgat 420
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gaacttcaaa tacttcctac cctccaattc agactcagct gactgttgag agagcagcac 720
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ggattaacag atggaattga ggagagagta ggatgctgat tttcctaccc gtggcccagg 840
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&lt;210&gt; 345

&lt;211&gt; 2109

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 345

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<210> 346

<211> 1714

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (21)

<223> n equals a,t,g, or c

<400> 346

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<210> 347

<211> 1672

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1667)

<223> n equals a,t,g, or c

<400> 347

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<210> 348  
 <211> 1483  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (19)  
 <223> n equals a,t,g, or c

<400> 348  
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 ttccctagaa cccagccag gtccgtggtg gccctgaaga ccccatcaa ggtggagctg 180  
 gtggcaggga aaacctacag gtggtgtgtg tgtggccgca gcaagaagca gcccttctgt 240  
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<210> 349  
 <211> 1842  
 <212> DNA  
 <213> Homo sapiens

<400> 349  
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 gggaaaccag agtctgtatt tttctaaact ccctggctgt tctgatcggc cagttttcgg 300  
 aaacactgac ttaggtttca ggaagttgcc atgggaaaca aataatttga actttggaac 360  
 agggttggaa ttcaaccagc caggaagcct actatttaaa tccttggtct caggttagtg 420

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<210> 350

<211> 3008

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (59)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (65)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1307)

<223> n equals a,t,g, or c

<400> 350

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 <211> 2756  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (1597)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (2540)  
 <223> n equals a,t,g, or c

<400> 351  
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<210> 352

<211> 1645

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (97)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1574)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1596)

<223> n equals a,t,g, or c

<400> 352

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atataagcct  aagtttttat  tcataagttt  tattgaagtt  ctgatcggtc  cccttcagaa  180
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ggcaaaaagt  ctgaaccctt  gttttctgaa  atctaatacag  ttatgtatgg  tttctgaagg  960
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<210> 353

<211> 1637

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (738)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (771)

<223> n equals a,t,g, or c

<400> 353

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cccactaggc agcttcgagc agatggaggc cgtgaacatt gctcagacac ctgctgagct 540
ctacaatgcc attctgggtg acacgcctct tgcggctttt ttccaggact gcatttcaga 600
gcaggacctt gacgagatga acatcgagat catccgcaac accctctaca aggcctacct 660
ggagtccctt tacaagttct gcaccctact gggcgggact acggctgatg ccatgtgcc 720
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cctgagggcc tggcgcastg gctcgggctg acgactatga acaggtcaag aacgtggccg 840
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gcatgtcact ttcattgttcc tccctaactc cctgacctga gaaccctggg gcctgggggc 1440
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aaaaaaaaa aaaaaaa                                     1637

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<210> 354

<211> 1119

<212> DNA

<213> Homo sapiens

<400> 354

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ccctgcgggg agtcggcccc cgaccttgcc ggcttcaccc tcctaattgcc agcagtatct 180
gttggaatg ttggccagct tgcaatggat ctgattatct ctacactgaa tatgtctaag 240
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gaaaaactgc tttcctgggt gaaaagcagt ggctgtgcca gagtcattgt tctttcragc 480
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gaaaaaagcc ggtgcattcc tgaaatagat gattccgagt tttgtatccg cattccggga 660
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tatcaaagaa aaaagattaa rggtctcttt gccatgcttt tcatcatatg caccaaattg 1080
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<210> 355

<211> 738

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (654)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (689)

<223> n equals a,t,g, or c

<400> 355

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ggcacgaggg acttgctgct ggetgcgcc gccgccactg gaaagctgaa atccttcgcc 60
cggaaattca tcaatttgaa tgaattcaca acctatggca gcgargaaag caccaaaccg 120
gcctccgtcc gggccctgct gtttgamatc tccttctca tgctgtgcca tgtggcccag 180

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acctatgggt caraggtgat tctgtccgag tcgcgcacag gagctgaggt gcccttcttc 240
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tgcttccgcc ccgactccac caaagtggag tccctgggtg ccctgctcaa caactcctcg 360
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ttggaaatcc tcaatgcctg ggagaatggg gtcctggcct tcgagtccat ccagaaaatc 480
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gccacgtcc ggatgctggg gctggatgag cgtgagaagt cgctgcagat gatccgccag 600
ctggcagggc cactgttttag ygagaacacc ctgcagttct acaatgagag ggtngtgatc 660
atgaactcga tcctgggagc gcatgtgtnc cgacgtgctg cagcagacag ccacgcagga 720
ttcaagtttc cctccaac 738

```

<210> 356

<211> 1966

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (56)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (788)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1753)

<223> n equals a,t,g, or c

<400> 356

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acgcttcagt tctgtctgtc aaggatatat aataactgat tgggtgtgcc gtttaataaa 180
agaatatgga aactgaacag ccagaagaaa ccttccctaa cactgaaacc aatggtgaat 240
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caaccagcca gctcccgtc gaatctgatg ctgtggaatg cttaaattac caacactata 600
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ggggtggtag cagagctcgg aatcttcctc ttctccacc accaccacct agagggggag 1140

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acctcatggc ctatgacaga agagggagac ctggagaccg ttacgacggc atggttggtt 1200
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ttgggatgtt ggcctagtct tgtgtgggaa gacttagtgg attttgtttg tttttagata 1920
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<210> 357

<211> 1562

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (16)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (18)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (260)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (262)

<223> n equals a,t,g, or c

<400> 357

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tttgagggcc cagttcttga tcacaggtat tatgcaggtg gatgctcccc gcattacatc 180
ctgaacacga ggtttaggaa gccctacaat gtggaaagct acacgccaca gacccaaggc 240
aaatacgaat tcatattaan anagtatgaa tcatactcag attttgaacg caatgtcaca 300
gagaaaatgg caagcaagtc tggtttcagt tttggtttta aaatacctgg aatatttgaa 360
cttggcatca gtagtcaaag tgatcgaggc aaacactata ttaggagaac caaacgattc 420
tctcatacta aaagcgtatt tctgcatgca cgctctgacc ttgaagtagc acattacaag 480
ctgaaaccca gaagcctcat gctccattac gagttccttc agagagttaa gcggctgccc 540
ctggagtaca gctacgggga atacagagat ctcttccgtg attttgggac ccactacatc 600

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acagaggctg tgcttggggg catttatgaa tacaccctcg ttatgaacaa agaggccatg 660
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ggtggtgcc a ttgaagaggt ctacgtcagt ctgggtgtgt ctgtaggcaa atgcagaggt 780
attctgaatg aaataaaaaga cagaaacaag agggacacca tggtaggaga cttggtgggtc 840
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cg 1562

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&lt;210&gt; 358

&lt;211&gt; 1931

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 358

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aatgccatct atttcaaggg aaactggaag gataaattca tgaaagaagc cacgacgaat 720
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300

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aaaaaaaaaa a                                     1931

```

&lt;210&gt; 359

&lt;211&gt; 869

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (869)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 359

```

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tagtcttatt cccaccacat actaggcact ccataaatat ctggtgaacc ttcattgacct 660
tatcaacttt acacctatat ccagcaaat gccactcatc cccactcttc atagacacat 720
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cctttatatg gtgcctcagt aaatatgtta ttaaatatgt aatccggaaa aaaaaaaaaa 840
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa                                     869

```

&lt;210&gt; 360

&lt;211&gt; 561

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (521)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (525)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (560)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 360

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ggcacgagag actccagccg ccaggggagc gcgtgccgtt cttgcctctc tggcctgcgc 60
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ccacaaagtg accaagaacg tgagcaagcc caggcacagc cgacgccgcg ggcgtctgac 240
caaacacacc aagttcgtgc gggacatgat tcgggaggtg tgtggctttg ccccgtacga 300
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gaaaagggtg gggacgcaca tccgcgccaa gaggaagcgg gaggagctga gcaacgtact 420
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ccattcgccc tawagggggg g 561

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&lt;210&gt; 361

&lt;211&gt; 1680

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (33)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 361

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cgctgtttgc attaaaaggg tgggtgagtc aggaccctg gctcargagc cgyctctcct 180
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cctttacatt gttggagaaa tgaagccaaa gttattcaga tggttttccc aggctaaagg 600
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302

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```

&lt;210&gt; 362

&lt;211&gt; 740

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (591)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (709)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (718)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 362

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tgaaaagggt tagggaaggg 740
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&lt;210&gt; 363

&lt;211&gt; 1324

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (385)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 363

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cgctgcctgg tgccgtggcc gcctcctcgg gcagcccccc gggctcggcg ctggcggcag 60
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&lt;210&gt; 364

&lt;211&gt; 2853

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 364

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<210> 365

<211> 1837

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (136)

<223> n equals a,t,g, or c

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<210> 366

<211> 1823

<212> DNA

<213> Homo sapiens

<400> 366

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<211> 898

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<213> Homo sapiens

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<222> (17)

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<211> 2226

<212> DNA

<213> Homo sapiens

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<220>

<221> misc feature

<222> (35)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (36)

<223> n equals a,t,g, or c

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<210> 370

<211> 3636

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (1937)

<223> n equals a,t,g, or c

<400> 370

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<211> 4039

<212> DNA

<213> Homo sapiens

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<221> misc feature

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<223> n equals a,t,g, or c

<400> 371

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ccagatggct gtattcacat gtaggttttg gctgtaatct aaacaattgg acagattaaa 3960
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agatgaaaaa aaaaaaaaaa 4039

```

&lt;210&gt; 372

&lt;211&gt; 1599

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 372

```

ccatccagct ggggatgcag agcacctgat gcacctggaa cagggtgctct gcatccccag 60
ctggatggca aaattctttt cttggacact tgaaccatc ttctcttctt cagaaccac 120
cagcgaacag aattgggatg ggagccacgc tggacatcca gagacagcag agaattggagc 180
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ttaaaaaaaaa aaaaaaaaaa aaaaaaaaaa agggcggcc 1599

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&lt;210&gt; 373

&lt;211&gt; 464

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 373

313

```

ctcaaaaatc accagaaaac tcatactagt gaaaaatcct ataaatgtaa tgaatgtaga 60
aaggccttta gttactgctc tggctcttatt caatgtcagg tcattcatac tatagaaaaa 120
ccttatgaat acggtaaatg tggcaaaagcc ttttaggcaga ggacagacct taaaaaacat 180
cagaaaatgc ataccgarga gaaaccctat gaatgtaatg aatgtgggaa agccttttagc 240
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aaccagaagg aggatcgtga aaacctgttg actacttaga tgat 464

```

&lt;210&gt; 374

&lt;211&gt; 890

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (886)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 374

```

ggctgctgga ggcgagggct tcggaagtct tcatgctagt ctctggtgggt tccgcggtgt 60
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gagcaacatg cccaagtttt attgtgacta ctgcgataca tacctcacc cagactctcc 180
atctgtgaga aagacacact gcagtggag gaaacacaaa gagaatgtga aagactatta 240
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ctgtcctatg aaagagaata gttttggagg ggagaagtgg gacaaaaaag atgcagtttt 780
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaanaaaa 890

```

&lt;210&gt; 375

&lt;211&gt; 1874

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 375

```

gttcaggaac ttaggctaga aaggaacaca gtaaactgaa ttgatccgtt tagaagttta 60
caatgaagtt tcttctaata ctgctcctgc aggccactgc ttctggagct cttcccctga 120
acagctctac aagcctggaa aaaaataatg tgctatttgg tgaaagatac ttagaaaaat 180
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attacacacc tgacatgaac cgtgaggatg ttgactacgc aatccggaag gctttccaag 480
tatggagtaa tgttaccccc ttgaaattca gcaagattaa cacaggcatg gctgacattt 540

```

```

tggtgggtttt tgcccggtgga gctcatggag acttccatgc ttttgatggc aaaggtggaa 600
tcctagccca tgcttttgga cctggatctg gcattggagg ggatgcacat ttcgatgagg 660
acgaattctg gactacacat tcaggaggca caaacttggt cctcactgct gtccacgaga 720
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tacataatat ttttcaattt tgaaaactct aattgtccat tcttgcttga ctctactatt 1680
aagtttgaaa atagttacct tcaaaggcca agagaattct atttgaagca tgctctgtaa 1740
gttgcttcct aacatccttg gactgagaaa ttatacttac ttctggcata actaaaatta 1800
agtatatata ttttggtcct aataaaattg aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1860
aaaaaaaaaa aagc 1874

```

<210> 376

<211> 2018

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1997)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2012)

<223> n equals a,t,g, or c

<400> 376

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gccctgaacc cagtgcctgc agccatggct cccggccage tcgccttatt tagtgtctct 120
gacaaaaccg gccttggtga atttgcaaga aacctgaccg ctcttggttt gaatctggct 180
gcttcaggag ggactgcaaa agctctcagg gatgctggctc tggcagtcag agatgtctct 240
gagttgacgg gatttcctga aatgttgagg ggacgtgtga aaactttgca tcctgcagtc 300
catgctggaa tcctagctcg taatattcca gaagataatg ctgacatggc cagacttgat 360
ttcaatctta taagagttgt tgcttgcaat ctctatccct ttgtaaagac agtggcttct 420
ccaggtgtaa stgttgagga ggctgtggag caaattgaca ttggtggagt aaccttactg 480
agagctgcag ccaaaaacca cgctcgagtg acagtgggtg gtgaaccaga ggactatgtg 540
gtggtgtcca cggagatgca gagctccgag agtaaggaca cctccttgga gactagacgc 600
cagttagcct tgaaggcatt cactcatacg gcacaatatg atgaagcaat ttcagattat 660

```

```

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attttaccac acactgtttt ttggcttgct tatgtgtagg tgaacagtca cgctgaaac 1920
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aaaaaaaaaa aaaaccncgg ggggggcccc gnacccca 2018

```

<210> 377

<211> 818

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (818)

<223> n equals a,t,g, or c

<400> 377

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gggcccgtcat ggccatgaag gggaagaact gtgtggccat cgctgcagac aggcgcttcg 180
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tgtacatcgg tctggccggg ctgcgcaact acgtccagac agttgcccag cgcctcaagt 300
tccggctgaa cctgtatgag ttgaaggaa gtcggcagat caaaccttat accctcatga 360
gcatgggtgg caacctcttg tatgagaaac ggtttggccc ttactacact gagccagtca 420
ttgccgggtt ggaccggaag acctttaagc ccttcatttg ctctctagac ctcatcggct 480
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tgtgtgagtc cctctgggag cccaacatgg atccggatca cctgtttgaa accatctccc 600
aagccatgct gaatgctgtg gaccgggatg cagtgtcagg catgggagtc attgtccaca 660
tcatcgagaa ggacaaaatc accaccagga cactgaaggc ccgaatggac taaccctgtt 720
cccagagccc actttttttt ctttttttga aataaaatag cctgtctttc aaaaaaaaaa 780
aaaaaaaaaa accccggggg gggcccgga ccaaattn 818

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<210> 378

<211> 2565  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (1508)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (2565)  
 <223> n equals a,t,g, or c

<400> 378  
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 agacctgaat gggcttgacc atctcacaac tgctcgcgtg acgaccgcat tcgtggcagg 180  
 taagaagatt gctgtatcaa ctcaagaaag cagtaacttc actgtctttg tattttgaat 240  
 tgcaacaaca actttgatata caacaatgaa gcaatgatata ctaagaacma aagartattt 300  
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 ccagtggaaa actggccttt atgtgattgt cttatttctt tccattctaa aggatttcca 780  
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 tacatgatata aggcaatttc ttttgatgt taattcrgtc aaaaatacta ccacttgat 2160

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gtaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaggg ggggn 2565

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&lt;210&gt; 379

&lt;211&gt; 1680

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 379

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agcccaacag ctgttctgtt ctatctaccc ctcatctcac gctcaaggag tcatacctag 120
aatagttaca cacaagaggg aaactggaag ccaaacactg tacagtattg tgtagaaagt 180
cacctcccta ctcccttttat tttacatgag tgctgatgtg ttttggcaga tgagctttca 240
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tcttagttct tgaaattgtg gaatgcatga ttgacaatat atttttaatt tttatttttt 360
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tttacagtct gtattagaca tactgttttt ataatgtttt acttctgcct taagatttag 1560
gttttttaaa tgtatttttg ccctgaatta agtggttaatt tgatggaaac tctgctttta 1620
aatcatcat ttactgggtt ctaataaatt aaaaatttaa cttgaaaaaa aaaaaaacga 1680

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&lt;210&gt; 380

&lt;211&gt; 1267

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (214)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1165)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1255)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1262)

<223> n equals a,t,g, or c

<400> 380

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atgtatatgg ctttactcaa gcaratctca tctcatgaca ggcagccacg tctcaacatg 180
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<210> 381

<211> 1031

<212> DNA

<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1015)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 381

```

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ggggggggccc c 1031

```

&lt;210&gt; 382

&lt;211&gt; 1597

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1577)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1579)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1597)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 382

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atcacgtgga cgctactcgc tatccccggc ctgttggtt cttccgcgct ggagtatcca 60
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agcggctgtc caatcgagtc gtgcgtgtgt tgggctgtaa cccgggtccc atgacctcc 180
aaggcaccaa cacctacctt gtggggaccg gccccaggag aatcctcatt gacactggag 240
aaccagcaat tccagaatac atcagctgtt taaagcaggc tctaactgaa tttaacacag 300

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```

<210> 383

<211> 175

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (95)

<223> n equals a,t,g, or c

<400> 383

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<210> 384

<211> 2171

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2166)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2170)

<223> n equals a,t,g, or c

<400> 384

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cggacttcctt gggaaagtgg ggaaggccaa ggggaaaaaa acacaaatgg ctgaagtttt 180
gccttctccg cgtggtcaaa gagtcattcc acgaataacc atagaaatga aagcagaggc 240
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tggtgtggaa ctagaaggcc taaaacaaag attagaaaag aaacagaaaa gagaaccagg 360
tacaaagaca aagaaacaaa ctacattggc atttaagcca atcaaaaaag gaaagaagag 420
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gggggncccn g 2171
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<210> 385

<211> 2364

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (19)

<223> n equals a,t,g, or c

&lt;400&gt; 385

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&lt;210&gt; 386

&lt;211&gt; 2864

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 386

```

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ccggaacaa agaacgaacg gcagggtgat aagccactat acgacaggta ccggctggtc 120
aaacagatcc tctcccagc taacaccata cccatcattg gttccccctc cagcaagcgg 180

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&lt;210&gt; 387

&lt;211&gt; 2683

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

<220>  
 <221> misc feature  
 <222> (40)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (2649)  
 <223> n equals a,t,g, or c

<400> 387

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cagaggaaaa atgatccagt ggacacttgg ggattatctg tcattcaaga tccttccttc 1620
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aagaaagaaa gaaacctcat cctatatattt acaaagcatg tgaattcttg cattagctct 1920
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tgaatggtta acacgagcta gttaaacagt gccattgttt tgccagtga gcctccaacc 2040
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gtgagctgag ttcattggctt tttttttag ccagtctgt ccctggccat ccatgtgatg 2280
gttttggatg gagttaaact tgatgccagt gggcagtgca tgtggaaagt atcagagtaa 2340
gsctctcccc tccagagccc tgagtttctt ggctgcatga aggttttctt tagaatcaga 2400

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325

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attgtagcca gtttcttttg ccagaaggat gaatacttgg atattactga aagggagggg 2460
tggagatggg tgtggcagtg tatggtgtgt gatttttatt ttcttctttg gtcattggggg 2520
ccaaggagaa aggcattgaat cttccctgtc aggcctcttac ascacaggca ctgtgtctac 2580
tgtctggaag acatgtcccc gtggctgtgg ggcgcgtgct tctgtttaaa taaaagtggc 2640
ctggaarmna aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 2683

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&lt;210&gt; 388

&lt;211&gt; 1446

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (35)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (37)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (57)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 388

```

aagaactaaa acgactcact atagggaaaa actananacg cctgacagga aaccggnccg 60
gaattcccg gtcgaccac gcgtccgaar argaggtgga ggargagggt gatgttgata 120
gtgatgaaga agaggaggaa gatgaggaga gctcctcgga gggcttgagg gctgaggact 180
gggcccagg agtagtgagg gccggtggca gcttcggggc ttatggtgcc caggagggaag 240
cccagtgcc tactctgcat ttcttggaag gtggggagga ctctgattca gacagtgagg 300
aagaggacga tgaggaagag gatgatgaag atgaagacga cgatgatgat gaggaggatg 360
gtgatgagg gtctgtaccc agctttgggg aggccatggc ttactttgcc atggtcaaga 420
ggtacctgac ctccctcccc attgatgacc gcgtgcagag ccacatcctc cacttggaac 480
acgatctggt tcatgtgacc aggaagaacc acgccaggca ggccggagtt cgaggctctg 540
gacatcaaa ctgagtcact ggacctagct gtgcccccaa cctagattgg cagcaccacc 600
ccagggcaga ggactctctg ggcacccgct gtgcatggag ccagagtgca gagccccaga 660
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ccgtgccctc agtggactaa ccacagcagc agccagggat gggccctgga ggttcccggc 900
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cattctggga agggctccag aagaagggtc agcctaggcc ccctgcaagg ctggcagccc 1020
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ccaagggcgc ttcttctgtg gcagctgcag gccccatgcc tctcctccct ctctggcagg 1260
gccccatcct gggcagaggg gcctggggct gggccagag tccagccgtc cagctgctcc 1320
tttcccagtt tgatttcaat aaatctgtcc actcccttt tgtgggggtg aacgttttaa 1380
cagccaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1440

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aaaaaa

1446

&lt;210&gt; 389

&lt;211&gt; 723

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (705)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 389

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gggcaagacc tcatgcctaa aaaataaaga gaaagcagag taaaactgga ctctgagata 60
ygactaaagt tctgtgtgat acgtgtgcct tatttagctc aagacattcc tggagcacct 120
ataaaaaactg acttgtaatc caggctatgt ctcttttttag cttcgtaatc tttggcaagg 180
ccattggatt cttcagctgt acaattagga gactcgatca ggtgattgcc tttctcagct 240
gtcagttctc taatttcagg cttggtagct tgtaggaact gaaattgcaa ttaaaacctt 300
tataaactca aactaaatca tgaattacag aaaaagtcca ttcttccaaa acttgatggt 360
accacactta caagtttaaa atatgaagtc gactgtttta aggattctgc atataattcta 420
gtgtgcacat tcagaaacat ttttcttgga aaaagtaccc aacatttttt ataactgcac 480
atattaattt attgccagaa taaattgcat tgcattgctaa ataaagtcag ataattcaaa 540
tccatttgct tttatgtagt ttttcttcta aatgtcaaca ttttggaatt aaaatgttta 600
tggttttata tgagggtagg aaatcttaac tgctttgggg ggtattgttt ataggctttt 660
tgttatgggg ccggtagttt tttaataggg ggattgccca tttcnaccgt ttggggggccc 720
ggg

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&lt;210&gt; 390

&lt;211&gt; 1046

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 390

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cgggtcgacc cacgcgtccg gtccaccaca ggcaccgcag ctcatctacc aggaatatgt 60
gaaccagcca gatgttcggc cccagccccc ttcgccccga gagggccctc tgcctgctgc 120
ccgacctgct ggtgccactc tggaaagggc caagactctc tccccaggga agaattgggt 180
cgtcaaagac gttttttgct ttgggggtgc cgtggagaac cccgagtact tgacacccca 240
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acctacggca gagaacccag agtacctggg tctggacgtg ccagtgtgaa ccagaaggcc 420
aagtccgcag aagccctgat gtgtcctcag ggagcaggga aggcctgact tctgctggca 480
tcaagagggtg ggagggccct ccgaccactt ccaggggaac ctgccatgcc aggaacctgt 540
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aggggtccagt ggatgccaca gccagcttg gccctttcct tccagatcct ggggtactgaa 720
agccttaggg aagctggcct gagaggggaa cgggccctaa gggagtgtct aagaacaaaa 780
gcgacccatt cagagactgt ccctgaaacc tagtactgcc ccccatgagg aaggaacagc 840
aatggtgtca gtatccaggc tttgtacaga gtgtttttct gtttagtttt tacttttttt 900
gtttttgttt tttaaagatg aaataaagac ccagggggag aatgggtgtt gtatggggag 960
gcaagtgtgg ggggtccttc tccacaccca ctttgtccat ttgcaaatat attttggaaa 1020
acaaaaaaaa aaaaaaaaaa aaaaaa

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